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Evaluation of Medicaid Section 2176
Home and Community-Based Care Waivers

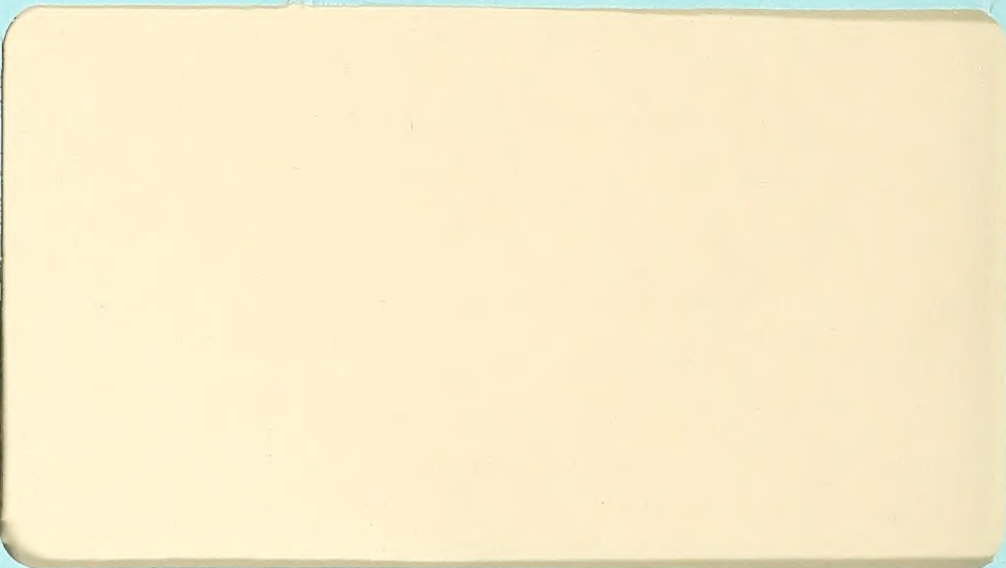
Robert M. Clinkscale

La Jolla Management Corporation

Department of Health and Human Services
Health Care Financing Administration
Office of Research and Demonstrations

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December 1986

Evaluation of Medicaid Section 2176
Home and Community-Based Care Waivers

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This Working Paper was prepared by La Jolla Management Corporation under HCFA Contract Number 500-83-0056 with support from SysMetrics/McGraw-Hill, Inc. Dr. Manton is the Director, Center for Demographic Studies, Duke University.

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Suggested Citation: Clinkscale, Robert M. and Vertrees, James C.; Evaluation of Medicaid Section 2176 Home and Community Care Waivers, Medicaid Program Evaluation Working Paper 1.10, La Jolla Management Corporation, December, 1986. Sponsored by the U.S. Health Care Financing Administration, Contract Number 500-83-0056.

PREFACE

The Medicaid program, which finances health care for over 20 million needy Americans, has undergone major changes since 1981. Beginning with the Omnibus Budget Reconciliation Act of 1981 (OBRA), Congress gave the States much more flexibility to change basic parameters of the program, including which groups of people are served, which services are provided, how doctors, hospitals and nursing homes are paid, and how care can be organized in innovative ways.

The Medicaid Program Evaluation addresses the implementation and impact of selected changes in the Medicaid program to provide knowledge for policy assessment and future legislative change. It is focused on selected issues and policy questions raised by recent legislation. The three-year evaluation included nine major study areas:

- Federal Financial Participation
- Inpatient Hospital Reimbursement
- Eligibility
- Case Management
- Home and Community-Based Waiver Program
- Cost-Sharing
- Financial Incentives for Family Care
- Medicare PPS Effects on Medicaid and
- Synthesis.

Together these studies are intended to describe how recent changes have been implemented and analyze what their effects have been for program services and costs.

This report presents interim findings from an evaluation of the Medicaid home and community-based care waiver programs established under Section 2176 of OBRA. It includes four intensive case studies of established waiver programs in two States, an analysis of aggregate long term care expenditure trends in waiver and non-waiver States, tabulation of annual statistical and financial reports to HCFA, and the results of a survey of all State waiver programs. The evaluation is ongoing and is to be completed by the end of December, 1987.

Gerald S. Adler
Project Officer
Medicaid Program Evaluation

ACKNOWLEDGEMENTS

This report is the work of many people. Home and community-based care waiver staff in every State 2176 waiver program helped to collect data on their programs. HCFA staff gave generously of their time to help us find information in waiver applications and to interpret State HCFA-372 reports. Staff in the Office of Research reviewed drafts of the report and made many constructive suggestions. We would like to thank our subcontractors, SysMetrics/McGraw Hill and Duke University Center for Demographic Studies for their valuable contributions. We extend a very special thanks to our HCFA Project Officer, Gerald S. Adler, for his encouragement and support.

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EXECUTIVE SUMMARY

Background and Purpose

This report presents interim findings from an evaluation of the Medicaid home and community-based care waiver program. Section 2176 of the Omnibus Budget Reconciliation Act of 1981 authorized the Secretary of DHHS to grant waivers to States permitting Medicaid reimbursement for certain home and community-based health and social services to Medicaid eligibles, who, but for the waiver services, would resort to care in a nursing home or other institutional setting. The target populations for the legislation are the low income frail elderly, severely physically disabled, and the mentally disabled such as the mentally retarded or chronically mentally ill. The Section 2176 waivers permit States to expand eligibility and services beyond those normally permitted by Medicaid in order to maintain people in the community who otherwise would require Medicaid funded institutional care. In applying for waivers, States must show that the additional costs of waiver services will be offset by reductions in nursing home or other long term care Medicaid expenditures. The idea behind the waivers is to make living at home and in the community a Medicaid program alternative to institutional care, while at the same time helping to curb rising costs of long term care for these populations.

The evaluation has sought to answer the following questions:

- How have States used the waiver authority?
- To what extent have States successfully targeted the waivers to those who otherwise would have been in institutions under Medicaid?
- Have the waivers lowered aggregate Medicaid long term care expenditures?
- Have additional costs to other Federal programs (such as Medicare and SSI) resulted from the use of the waiver?
- Do the waivers provide appropriate services, adequately monitored?
- What are the attributes of a successful waiver program?

In order to address these questions, we have conducted a number of interlocking studies using all available data and collecting additional information where necessary. These include:

- Analysis of State waiver applications.
- Tabulation of annual statistical and financial reports to HCFA.
- Conduct of special surveys of all State waiver programs.

- Intensive case studies of four established waiver programs in two States.
- Analysis of aggregate long term care expenditure trends in waiver and non-waiver States.

There are several critical limitations to this evaluation study. The first is that we have conducted only four case studies of waiver programs. The findings from these studies are not generalizable without caution. Second, the waivers have only been in effect three or four years. The real effect of the waivers on long-term care delivery and financing may take more time to play out. For example, any reduced demand for nursing home and state institutional beds may not reduce supply side costs until the beds are closed down. Finally, the preliminary evaluation findings do not necessarily mean that the Section 2176 waiver program is bad federal policy. Although some of the waiver programs may not meet the Congressional budget neutrality criterion, the waiver services do have great value to this impaired population. Perhaps the policy issue can be redefined to be "Are the waiver services worth the money?"

The findings contained in this report represent what has been learned after three years of study. Other aspects of the overall evaluation are ongoing and the study is to be completed by the end of December, 1987.

The Waiver Program Is Popular With The States

The waiver program has been enthusiastically received by the States. As of September 1985, 75 waiver programs have been established by 42 States. During FY1985 over 70,000 people were served at an annual Medicaid cost of \$257 million. Fiscal year 1986 costs were closer to \$400 million. Two-thirds of the persons served were aged and disabled (A/D); one-third were mentally retarded or otherwise developmentally disabled (MR/DD). While the MR/DD group represents only one-third of the total population served, this group makes up about two-thirds of the expenditures. Five States comprise over half of the national A/D caseload while five States represent 66 percent of the MR/DD group. Although growing in size each year, the A/D waiver population is still only 4 percent of the size of the national Medicaid nursing home population. In contrast, the size of the MR/DD waiver population was closer to 25 percent of the ICF-MR resident population. Most people who enter waiver programs are already living at home or in the community; very few waiver recipients actually leave an institution for home or community care.

States see the waiver program as a new and useful component in their design of long term care systems to meet their needs. The waiver services most often used for the A/D target group were personal care and homemaker services. For the MR/DD group, most of the money is used for habilitation services and to help pay the costs of residential care staff. Since MR/DD persons are typically also SSI cash recipients, they use their own funds to pay for room and board.

Medicaid Costs Are Lower For Waivered As Compared To Institutional Recipients

Analysis of data from State reports to HCFA (HCFA Form 372) indicate that Medicaid expenditures are lower for waived clients as compared to persons in institutions. Among the reporting States, the average annual total Medicaid

expenditure per full person-year of A/D waiver coverage was \$8,273 as compared to \$12,435 for a year in a nursing home setting. This represents a potential savings of \$4,162 per year of coverage; or a one-third reduction.

Data reported for the MR/DD group show greater potential for cost savings; e.g., \$11,027 per year for waived recipients compared to \$25,453 per year for ICF-MR residents; a reduction of almost 60 percent per person-year of coverage. Unfortunately, these data were available on only a small number of waivers (eight second year waiver reports approved by HCFA) and may not be completely representative. They do, however, support the notion that home and community care can be considerably less expensive for Medicaid than institutional care.

Case Studies Indicate That Some Waivers Are Not Budget Neutral

The Congress intended for the cost of waiver services to be offset by savings in reduced institutional outlays; i.e., be budget neutral to Medicaid. Simple comparisons of Medicaid costs for waived and non-waived long term care recipients will be misleading. Several assumptions are critical. They are: per capita total Medicaid expenditures in a given year for waived recipients must be less than for cohorts in institutional settings, waiver eligibility must be restricted to those who would otherwise opt for institutional care (targeting), waiver services must be effective substitutes for institutional care (service efficacy), and any savings at the person-level must translate to savings in State-level Medicaid spending. All of these assumptions must be met if a waiver is actually to be budget neutral to Medicaid.

To date, four intensive waiver case studies have been completed. These studies were undertaken in order to observe at close hand how waiver programs were managed, to review quality assurance procedures, and to gather evidence of budget neutrality to Medicaid. The four case studies include two waivers targeted to impaired elderly, one for mentally retarded clients, and one for severely disabled persons who are largely respirator dependent. Evaluation findings for these waivers should not be generalized to all waivers as each State waiver is unique.

California Multipurpose Senior Services (MSSP) Program. The MSSP program serves an elderly, sick, and functionally impaired population of Medi-Cal recipients. Most of the MSSP recipients were elderly white females. Clients must be certifiable for nursing home care in order to enter the waiver program. The program began in 1980 as a demonstration project and converted to a 2176 waiver in 1983. During 1985, 3,944 people were served. Person-level data were obtained for client and control groups regarding Medi-Cal expenditures, Medicare costs, and functional and health status. Functional and health variables were used to control for differences between treatment and control groups in the risk factors that influence nursing home use.

The study found that MSSP services cost less than nursing home care -- \$350 compared with \$1,144 per month in FY1984. Thus, the program must correctly substitute a day of waiver care for a day of nursing home care 30 percent of the time in order to break even or be budget neutral to Medicaid. Our statistical analysis found that only 2.5 percent of MSSP clients would have entered a nursing home in the absence of the waiver (client targeting) and for those who would have entered a home, the MSSP services delayed or prevented nursing home entry in less than half of the cases (service efficacy). The MSSP was not targeted to persons at extremely high

risk of nursing home entry, and when targeting was correct, the waiver services did not prove to be good substitutes for nursing home services.

Georgia Community Care Services (CSSP) Program. The Georgia waiver originated as a demonstration program in 1976 and serves an aged and chronically ill population throughout the State. The CSSP became a waiver program effective October, 1981. The demonstration phase of the Georgia program was evaluated and found to be lacking in client targeting; i.e., rates of nursing home entry for the treatment and control groups were found to be equal at 15 percent over the two year follow-up period. In reviewing Georgia's application for a 2176 waiver, HCFA expressed concern about the lack of previous cost-effectiveness as a demonstration. Georgia proposed to improve client targeting by more carefully screening each applicant and to cap waiver costs at 75 percent of nursing home costs.

Our case study compared the experience of over 1,000 waiver recipients in late 1981 and 1982 with that of a community control group established for the earlier demonstration. Most of the waiver recipients were elderly black females, 20 percent were over the age of 85, and most suffered from multiple chronic functional impairments. All waiver recipients met nursing home admission criteria. Health status assessments were available on both groups, and Medicaid and Medicare claims data were linked to identify comparative utilization and expenditure profiles. The average cost of waiver services in Georgia during 1982 was \$172 per month compared with average monthly nursing home costs of \$727. Our analysis matched waiver and controls on demographic, health and degrees of functional impairment. Our findings regarding client targeting were somewhat encouraging in that individuals enrolled in the waiver program had a 30 percent chance of entering a nursing home during the waiver period (30 percent of the control group enter a home). This percentage is much higher than the 2.5 percent found in the California MSSP study. However, additional findings show that the waiver services were not useful in delaying nursing home entry; i.e., both waiver and controls were equally likely (30 percent) to enter a nursing home. Therefore, the cost of Georgia waiver services were an add-on to Medicaid since there were no offsetting savings in nursing home expenditures.

California In-Home Medical Care (IHMC) Waiver. This waiver targets in-home nursing services to severely disabled individuals who are often ventilator dependent small children at high risk of long-term hospitalization. Most recipients are extremely ill, often comatose. Mortality accounts for most program terminations. Retardation is prevalent for the target group due to brain damage at birth. During 1982 there were about 115 recipients in the waiver program. California's waiver application projected Medi-Cal savings approaching \$15,000 per recipient per month since hospital costs were \$30,000 per month and the cost of in-home nursing services were projected to be \$15,000 per month. At the same time, the in-home nursing would enable the recipient to live at home with family instead of at the hospital.

Our evaluation design involved a simple comparison of Medi-Cal expenditures 3-6 months before and after entry to the waiver program for a sample of 19 recipients. The sample is regarded as representative of typical waiver recipients. The average cost of waiver services was found to be \$218 per day, mostly to pay for 16-hour nursing services. Average total Medi-Cal expenditures before waiver entry were \$10,138 per month, compared to \$12,125 after entering the waiver program. This is a very different outcome than projected in the waiver application. Based on the sample examined it would seem that the level of hospitalization prior to waiver entry was

much lower than projected and, unexpectedly, the level after entry was higher. Twelve of the 19 recipients in the sample had monthly Medi-Cal costs of less than \$5,000 in the pre-waiver period. This reinforces the finding that substantial numbers of waiver recipients were already living at home during six months prior to waiver entry rather than at hospitals.

The average increase in Medi-Cal costs after waiver entry was not, however, found to be statistically significant due to high variances in the cost data. The findings do suggest that contrary to expectations, the IHMC waiver program probably does not result in the savings to Medi-Cal projected in the waiver application. Our qualitative review of the program suggests that quality of care for the homebound recipients is excellent.

California Developmentally Disabled Services (DDS) Waiver. The study used a pre-post evaluation design. The study population included all persons who received DDS waiver services in 1983, a total of 594 individuals. For the cost study, only those waiver recipients who were also enrolled in Medicaid in 1981 (prior to implementation of the waiver), who used at least one Medicaid-covered service in 1981, and for whom 1983 Medi-Cal data were available were selected. The sample thus included a total of 488 developmentally disabled persons who were both Medicaid recipients in 1981 and waiver recipients in 1983. The study addressed the question: What did it cost Medi-Cal to serve waiver clients prior to the waiver in 1981 after they were admitted to the waiver (1983)? Detailed claims for waiver services from DDS were linked with Medi-Cal person-level claims for non-waiver services to obtain a complete record of Medicaid utilization and expenditures for the study sample in 1981 and 1983. Person-level data on spend-down liability amounts were used to estimate impacts on Federal SSI costs.

Prior to the waiver in 1981 most of the eventual DDS waiver recipients lived in the California State hospital system, reimbursed by Medi-Cal at ICF-MR rates. Hence, in 1981 the average annual cost to Medicaid, annualized to a full year of Medicaid coverage and inflated to 1983 dollars, was \$29,414 as compared to \$8,699 in 1983. About \$7,000 of this total was for DDS waiver services, the remainder represents non-waiver Medicaid service costs. Thus, the DDS waiver clearly demonstrates that it can be much less expensive to care for the mentally retarded in residential settings than in relatively expensive ICF-MR institutions. This is true even when increased Federal SSI costs are considered.

Based on this pre-post data it would appear that a savings of \$10 million had accrued to Medicaid. On the other hand, we found that most of the waiver recipients had been deinstitutionalized well prior to their entry into the waiver program as part of an ongoing statewide effort to transfer mentally retarded patients to a system of State-funded residential care. Thus, it can be argued that potential savings to Medicaid is attributable to the deinstitutionalization program rather than the waiver. The cost of waiver services would be equivalent to an increase in Medicaid spending.

An additional finding is that the potential \$10 million savings to Medicaid at the person-level was probably never realized at the overall Medi-Cal level. Although the number of persons in State institutions declined by 12 percent between 1981 and 1985, the average per-person institutionalized cost increased by 40 percent. Although Medicaid bought fewer days of ICF-MR care, increases in the cost per day appear to have more than offset the potential savings; i.e., overall ICF-MR spending increased.

When occupancy rates fell in the State institutions they continued to operate them at about the same cost, and higher costs per patient day were passed on to Medicaid. Our overall conclusion is that it is implausible that the waiver was budget neutral to California's Medicaid program.

States With Waivers Do Not Have Slower Growth In Nursing Home Use Or Outlays

An analysis was conducted in order to examine whether the waivers were as yet associated with any national trend reduction in nursing home use or expenditure rates. Separate analyses were conducted for A/D and MR/DD types of waivers using annual statistical data routinely reported by States to HCFA (HCFA Form 2082). The hypothesis was that the waivers had reduced the rate of growth in spending and the rate of growth in recipients of long term care.

For the aged and disabled programs we were concerned about the relatively small proportion of long term care clients (4 percent) served by the waivers coupled with the large changes that have occurred elsewhere in the health care arena, e.g. Medicare's PPS, nursing home bed supply limitations, etc. These factors would likely mask any waiver effects. The analyses generally indicated that the number of recipients in waiver States grew more slowly than in non-waiver States, but expenditures per recipient grew more rapidly. However, these differences were not found to be statistically significant. Thus, no evidence was found to support the notion that the A/D waivers would reduce program spending rates. This result may well change as A/D waiver programs mature and grow in size.

The MR/DD waiver penetration rates are higher, about 23 percent. This means that large waiver effects should be measurable, but like the A/D analysis, the results for the MR/DD programs are not statistically significant. The hypothesis that waiver services can reduce growth in ICF-MR use and outlays was not accepted. Analysis of the data does show an interesting pattern. The MR/DD waivers appear to actually increase both the number of recipients and program spending during the first year of program operation. This increase levels off during the second year and actually begins to decline for programs in their third years. Perhaps some learning curve is involved in waiver operation or program effects appear only after several years.

Preliminary Conclusions

Evaluation findings thus far indicate that the Medicaid home and community-based care waivers are very popular with the States and their use is growing. Further, States are successfully demonstrating that the cost of serving people at home and in residential settings is substantially lower than in institutions. Our survey of waiver programs suggests that States give much more emphasis to monitoring and quality assurance for waiver services than for traditional Medicaid services.

Our case studies indicate that setting eligibility criteria (client targeting) so that recipients are limited to those who would otherwise be in a nursing home or other institution is extremely difficult. Some States may not really want to strictly limit waiver services to nursing home bound people. Even in cases where client targeting is accurate there is evidence that available waiver services do not significantly delay or prevent nursing home entry. If waiver services do not substitute for institutional care, they will be cost add-ons to Medicaid. This includes cases where the services are potentially effective substitutes but, due to a lack of available nursing home beds,

the waiver recipient would not incur nursing home expenses in any event. In the case of the MR/DD group most of the recipients entering the program already live in residential care settings. This causes us to question the extent to which waiver services are truly substituting for more expensive ICF-MR care. Most States are severely limiting new admissions to publicly funded institutions.

As expected, since waiver recipients are still a relatively small number compared with the entire long term care population served by Medicaid, we found no evidence at this time that waiver States have any more success slowing down rates of growth in nursing home use or outlays as compared with non-waiver States.

CHAPTER ONE

BACKGROUND AND PURPOSE

Section 2176 of the Omnibus Budget Reconciliation Act of 1981 (P.L. 97-35) authorizes the Secretary of Health and Human Services to grant waivers to States permitting Medicaid reimbursement for certain home and community-based health and social services to Medicaid-eligibles who, but for the waiver, would receive Medicaid-funded care in a nursing home or other institutional setting. As part of the Health Care Financing Administration's Medicaid Program Evaluation initiative, this report presents findings from a nationwide evaluation of how States have used their Section 2176 waiver authority, and the results to date. The report is interim in that it represents findings after only three years of a four year study period. The final report will be completed in October of 1987.

TRENDS IN LONG-TERM CARE USE AND EXPENDITURES

One of the most serious problems confronting society over the next several decades is the financing and delivery of long-term care services to the impaired elderly and other persons with chronic disabilities. These people have conditions which limit normal activities of everyday life such as bathing, working, eating and moving about; and usually require help from others. The growth in the numbers of the aged, their increased longevity, rising costs of health and other supportive services, and a growing reliance on government-financed institutional care are already having an enormous social, political and economic impact.

Demographic Trends

Not only is the number of elderly persons growing faster than the population as a whole, but the elderly population is itself becoming older. Between 1980 and 1990, the number of persons age 75 and older will increase at twice the rate of persons between the ages of 65 and 74 (Arnett et al, 1985). Between 1990 and the year 2000, the number of persons age 85 years and over will increase four times faster than the total U.S. population (Doty, Liu and Weiner, 1985).

Impact on Medicaid Long-Term Care Expenditures

The impact of these trends is already apparent. The cost of long-term care is such that if a middle income aged person enters a nursing home able to pay for his or her own care, the probability of exhaustion of all savings and assets within a year or so is substantial. The private insurance industry, as yet, offers little or no protection against the financial risks of long-term care; neither does Medicare. Increasingly, recourse to state Medicaid programs is the only alternative for both the indigent aged and disabled; as well as former middle income persons who may become indigent while trying to pay (spend-down) for their own long-term care out of savings (U.S. Comptroller General, 1979). Medicaid has now become the primary public program which pays for long-term care.

In 1985, nursing home expenditures accounted for about one half of almost \$40 billion in total Medicaid outlays. Medicare pays for almost no nursing home care.¹ If current utilization trends continue, Medicaid expenditures for nursing home care are expected to reach \$28.6 billion by 1990. This rapid growth in Medicaid funded nursing home expenditures is not due to increased use of nursing home care by the frail elderly, on the contrary, total days of stay for SNF and ICF care has remained almost constant over the last five years. Expenditures have gone up at about 8 percent per year due almost entirely to inflation in reimbursement rates per day. The real source of recent nursing home expenditure growth has been for ICF-MRs. Between 1980-83, ICF-MR expenditure rates grew at an annual compound rate of growth of 24.8 percent! All Medicaid funded LTC expenditures (SNF, ICF-Other, ICF-MR, psychiatric hospitals, home health care) grew at 12.0 percent during the same four year period. Although ICF-MR expenditures are still increasing faster than other LTC expenditures, over the next several decades the projected growth in the numbers of elderly will eventually dominate future growth in LTC expenditures.

This then, is the dilemma facing long-term care policy-makers. Most elderly or chronically disabled people have family and friends to act as caregivers. For those that do not the choice is all too often limited to Medicaid-supported nursing home or other expensive institutional care settings. Both the private sector and government must find new alternatives to expensive and often undesired institutional long-term

care. Our long-term care system requires major structural reform to open up new choices regarding service coverage and financing.

STATUTORY PROVISIONS OF SECTION 2176

In response to rapidly escalating costs for medical assistance, the Omnibus Budget Reconciliation Act (OBRA) of 1981 gave States significant new flexibility in structuring their Medicaid programs. The Act permitted States to restrict eligibility, modify (restrict or expand) service coverage and duration, require recipient co-payments, and implement innovative provider reimbursement methods that would provide cost-containment incentives.

Section 2176, one of the most important sections of the Act, gave authority to the Secretary of Health and Human Services to grant waivers to the States permitting Medicaid reimbursement for certain home and community-based services to specific target groups. One intent of Section 2176 was to help offset the often criticized bias among Medicaid programs which encouraged the use of costly institutional care by allowing States to liberalize eligibility provisions for home care and to offer an expanded range of home and community-based care services for Medicaid recipients.

Under Section 2176 waivers, States may extend liberalized eligibility options typically available to nursing home and other institutional residents to those who would remain in the community under the waiver. For example, States may opt to allow up to 300 percent of the SSI cash standard in determining income eligibility for nursing home residents. Before Section 2176 this special income eligibility option was restricted to nursing home residents and did not apply to a person wanting to remain in the home or community. Section 2176 allows States to extend this option to noninstitutional recipients as well. Section 2176 also allows States to waive the requirement that income of a spouse and other related household members be counted or "deemed" available to a Medicaid applicant in determining financial eligibility for Medicaid. On the other hand, if the recipient was institutionalized the "deeming" rule did not apply. These special rules created the Medicaid bias for institutional care in the first place. Section 2176 offers States the option of neutralizing that bias by offering the same eligibility "breaks" to those who would prefer to remain out of an institution. Further, Section 2176 allows States the option of tailoring waiver services



to individual needs and limiting eligibility for the waiver to defined target populations and geographic areas. Basic to the intent of Section 2176 was to give States the flexibility to target a Medicaid-funded home care program to meet their unique needs.

Traditionally, Federal financial participation in State Medicaid programs has been limited to "medically oriented" services only. Too many frail elderly and other disabled persons needing only modest assistance with normal activities of daily living entered nursing homes as the only way get help (U.S. Comptroller General, 1979). Section 2176 allows States to offer non-medical services such as case management, personal care, homemaker services, habilitation and residential services for the developmentally disabled, respite care, and other services which, along with the usual Medicaid medical services, could sustain a person at home or in a congregate living arrangement in the community rather than changing residency to a nursing home. Since the total cost of these service alternatives is generally less than the cost of nursing home care, the cost of the expanded service coverage was thought by the Congress to be more than offset through savings from the avoidance of unnecessary nursing home stays.

In addition to expanding the range of services which States may cover under Medicaid, Section 2176 gave States greater flexibility in deciding who may receive them. In general, all persons who meet financial and categorical eligibility are entitled to comparable Medicaid services; Section 2176 allows the states to select waiver recipients with the specific goal of targeting services to persons who otherwise would have to enter nursing homes. States may go beyond financial and categorical eligibility criteria to include medical, functional and social factors which put people at high risk of nursing home placement. The strength of an applicant's informal support network (family, friends, community) may, for example, be considered as a criterion for eligibility for home and community care services under the waiver.

The target populations for the waiver are typically those on Medicaid that reside in the relatively expensive State institutions and Medicaid-funded nursing homes. These low income individuals are the frail elderly, children and adults with chronic disabilities, the mentally retarded, other developmentally disabled, and the chronically mentally ill.

In their applications for Section 2176 waivers, states are required to project program caseloads, estimate the per capita costs of serving program clients, and show expected impacts on nursing home utilization and expenditures. States must show that the additional Medicaid cost of waiver services would at least be offset by reductions in nursing home expenditures; i.e., be budget neutral to the Medicaid program. Once granted, the waivers would be in effect for three years and are renewable. The first Section 2176 waiver granted by HHS was to the State of Oregon on December 23, 1981.

The Combined Omnibus Budget Reconciliation Act (COBRA) of 1985 made certain adjustments to the home and community care waiver provisions. In essence, COBRA reversed regulatory limits on the growth of the waiver program, gave States an automatic one-year extension to their waivers, allowed for five rather than three-year renewals, and allowed States to include case management services on a targeted basis as part of their regular Medicaid program. The COBRA legislation is evidence of sustained Congressional support for home and community care as an alternative to institutional long-term care.

While most of the attention among policy makers has focused on what impact the Section 2176 waiver program will have on aggregate Medicaid expenditures, a reading of the Committee Reports accompanying the enabling 1981 OBRA legislation makes clear that Congress intended the program to affect other changes in the delivery of long-term care services under Medicaid as well (CCH, 1983). The program was intended to stimulate the establishment of nursing home pre-admission screening programs which could help prevent avoidable nursing home admissions.

In requiring individual plans of care for each recipient of waiver services, Congress intended to promote better coordination of long-term care services, and thus tailor them more closely to the service needs of clients. Similarly, the diversification of services provided under the waiver was intended to increase the opportunities for long-term care recipients to choose the residential setting in which they will live, and the services that most meet their needs. Congress also hoped (CCH, 1983) the States would experiment with innovative provider reimbursement mechanisms for financing and delivering home and community care; and that the program would lead to more thorough evaluations of the relative costs of institutional and community-based care.

NATIONAL EVALUATION OF SECTION 2176 WAIVER PROGRAM

The U.S. Department of Health and Human Services is conducting a comprehensive four-year evaluation of the Section 2176 waiver program, which will examine program impacts at several levels. At the national level, the study is investigating overall trends in Medicaid nursing home utilization and expenditures before and after waiver implementation. Data reported by States to the Health Care Financing Administration (HCFA) were analyzed to provide periodic status reports on the waiver program nationwide and by State. La Jolla Management Corporation also conducted supplemental surveys on the detailed operations of all State waiver programs. At the State level, four separate case studies of waiver programs have been conducted to date. These studies examine implementation and impact of the waiver programs in depth. At a person-based level, the evaluation addresses the characteristics of persons receiving waiver services, types of services received, cost of services, and some evidence on the degree to which recipients are at risk of institutionalization. Some preliminary evidence as to the cost-effectiveness of home and community care waivers has been found. The study has to date produced a Report to the Congress entitled Studies Evaluating Medicaid Home and Community-Based Care Waivers (DHHS, 1984) and several unpublished working papers.

Evaluation Objectives and Scope

The overall objectives of the evaluation include documenting how States have used their waiver authority, monitoring State progress towards implementation, and assessing the impact of the waivers at the national, state and recipient levels. A major evaluation objective is to determine the extent to which waiver services are cost-effective to Medicaid and the possible cost impacts on other federal programs such as Supplementary Security Income (SSI) and Medicare. A major goal of the evaluation is to find out what determines the success of some waiver programs and how others might be improved. In addition, the evaluation may provide clues as to how the overall long-term care financing and delivery system might be reformed for the future.

The six major questions explored by this evaluation are:

- How have the states sought to use the waivers in terms of target populations and types of services?
- To what extent have states been successful in targeting the waiver services to those individuals who, "but for" the waiver, would have entered nursing homes?
- Has the cost of the waivers been offset by reductions in overall nursing home use or expenditures? Put another way, to what extent are the waivers cost-effective (budget neutral) to Medicaid?
- Have the waivers caused cost shifts to or from other public funded programs such as Medicare, SSI, and block grant programs?
- What is the quality of waiver services in terms of service mix and appropriateness to best improve quality of life and delay institutionalization?
- What are the attributes of a successful waiver program, in terms of both quality and cost-effectiveness?

Necessarily, the evaluation will only be a point of departure for answering the above critical questions. It will not be possible to provide unqualified answers to this complex set of evaluation issues. The overall goal of the evaluation is to take account of the waiver initiative and from it, extract useful insights into how financing and delivery of long-term care services might be improved.

Overview of Research Methods and Data Sources

An evaluation as comprehensive as this relies on many research methods and data sources. Several evaluation perspectives have been taken, each having unique issues and data sources. At the national level, the emphasis has been on documenting the way States have used their waiver authority and their progress towards implementation. In addition, emphasis was placed on detecting any reductions in the rate of increase in state and national Medicaid nursing home use and expenditures that may be reasonably attributable to the waiver programs. Major waiver target populations such as the elderly and disabled versus the developmentally disabled/chronically mentally ill have been examined separately.

National level research methods and data sources are as follows:

- Multiple regression analysis of the relationships between State Medicaid nursing home use and expenditure trends between waiver and non-waiver States, conducted for each of the two major target populations. Data sets used for this analysis were annual (HCFA 2082) and quarterly (HCFA 64) data reported by the States to HCFA.
- Annual surveys of State waiver programs using detailed written questionnaires to gather data on waiver population characteristics, service mix and costs, and quality of care safeguards. These data were not available from routine HCFA data sources, thus were collected specifically for this evaluation.
- Statistical analysis of annual State waiver reports to HCFA (Form 372). These reports provide basic information as to the number of waiver recipients served, services provided, and costs of services compared with institutionalized populations not served by the waiver.

State level studies made use of national data supplemented by selection of certain State waiver programs for case study analysis. Waiver programs covered by case study at this point in the evaluation include: California Multi-Purpose Senior Services Program (MSSP), California In-Home Medical Care (IHMC) Program, Georgia Community Senior Services Program (CSSP), and the California Developmental Disabilities (DDS) Program. These four waivers were selected for early analysis because data were available and the states expressed a willingness to cooperate in the case studies. Several site visits were made by evaluation teams to learn about program administration, targeted populations, services provided, quality assurance mechanisms, and screening and assessment criteria. The case studies also represent a cross-section of major waiver populations including the frail elderly, the physically disabled, and the developmentally disabled. Several additional case studies will be conducted in the last year of the evaluation.

Person-level data analysis was accomplished in parallel with the state case studies. The source of the person-level data was HCFA's tape-to-tape data set in all studies except one; the California In-Home Medical Care study. Due to the small size and ease of data availability person-based data were constructed using information made available directly from the IHMC waiver program. The purpose of the person-level analyses was to understand more completely the relationships between target

population characteristics and services received, the degree of risk of institutionalization, and independent accounting of waiver service costs.

In all cases the availability of data on strength of informal support was very limited. Since strength of informal support is a key determinant in risk of institutionalization, our analyses of the risk determinants of institutionalization is incomplete. Data on the use of other public support programs such as Medicare, SSI income security, and block grant social services programs was likewise limited.

PURPOSE AND CONTENT OF THIS REPORT

This report summarizes seven separate evaluation substudies undertaken to date. They are the survey of State waiver program operating characteristics (1985), an analysis of annual State waiver reports to HCFA (Form 372), a statistical analysis of national level impacts of the waiver programs in terms of reduced nursing home use and expenditures, and case studies of four specific waiver programs. All conclusions to date are considered preliminary as additional evaluation efforts are underway. Chapter Two of this interim report discusses the evaluation issues in detail as well as prior research and evaluation studies conducted by others.

Chapter Three presents current highlights of state waiver programs in terms of administration, total enrollment, target populations, geographic coverage available, waiver services, cost of waiver services, risk of institutionalization, and quality of care considerations. This chapter provides a comprehensive update on the status of Section 2176 waiver program drawn from a mail and telephone survey of all state waiver programs.

Chapter Four contains our analysis of the aggregate impacts of the waivers on state Medicaid nursing home use rates and expenditures. The purpose of this analysis was to test whether the waivers are as yet having a nursing home cost-containment effect at the state and national levels. Chapter Five presents statistical summaries of data reported annually by States to HCFA. These reports (Form 372) are required by HCFA as a condition of waiver approval and are used by HCFA to monitor the program nationwide.

Chapter Six contains case study summaries of four waiver programs, including findings from quasi-experimental designs using person-level data. These findings are not used to make generalizations about all waiver programs as each waiver is unique. The findings do, however, represent an important perspective in addressing the evaluation issues defined for the study.

Chapter Seven is a synthesis of the findings from all seven evaluation substudies conducted during the past year. These different evaluation perspectives, taken together, represent the sum knowledge gained by the evaluation to date.

ENDNOTES

1. Approximately 95 percent of the aged are covered by Medicare. Medicare pays for most of the expenses incurred by the aged for acute hospital and physician services. While Medicare pays up to 100 days of post-hospital care in a skilled nursing facility (SNF) during a spell of illness, it does not pay for care in a nursing home when SNF care is no longer required. Even then, Medicare pays for only the first 20 days of SNF care, thereafter the beneficiary must pay a \$65 daily coinsurance payment for days 21-100. If continued stay in a nursing home is required for intermediate levels of care, the costs must be borne by the patient. When patients are no longer able to pay for their care, the indigent patient often qualifies for coverage under their State Medicaid program. Generally, Medicaid covers costs for as long as the care is needed. It is for this reason that nursing home expenditures are so large a part of the Medicaid program. With the rapid growth in the elderly population, it is not difficult to imagine nursing home costs demanding larger shares of already severely limited Medicaid resources.



CHAPTER TWO EVALUATION ISSUES

The objectives of the evaluation include documenting how States have used their waiver authority, monitoring State progress towards implementation, and assessing the impact of the waivers at the national, State and recipient levels. A further evaluation issue is to determine the extent to which the waiver services are cost-effective to Medicaid and the possible cost consequences for other Federal programs such as Supplementary Security Income (SSI) and Medicare. In this context, the term cost-effectiveness is taken to mean the extent to which waiver services are effective substitutes for nursing home settings so that the costs of the waiver services is offset by the savings in nursing home or other institutional Medicaid expenditures. A major goal of the evaluation is to find out what determines the success of some waiver programs and how others might be improved. Finally, the evaluation may provide clues as to how the overall long-term care financing and delivery system might be reformed for the future.

The six major questions explored by this evaluation are:

- How have the States sought to use the waivers in terms of target populations and types of services?
- To what extent have States been successful in targeting the waiver services to those individuals who, "but for" the waiver, would have entered nursing homes?
- Has the cost of the waivers been offset by reductions in overall nursing home use or expenditures? Put another way, to what extent are the waivers cost-effective (budget neutral) to Medicaid?
- Have the waivers caused cost shifts to or from other public funded programs such as Medicare, SSI, and block grant programs or other State budgets? Might waiver services supplant private caregiving efforts?
- What is the quality of waiver services in terms of mix and appropriateness to best improve quality of life and delay unnecessary institutionalization?
- What are the attributes of a successful waiver program, in terms of both quality and cost-effectiveness?

The following sections probe these issues in terms of policy context, complexity, and prior evaluation research.

HOW STATES HAVE USED THEIR WAIVER AUTHORITY

Of major importance to the Congress and HHS is how States chose to use the Section 2176 waiver authority granted by OBRA 1981. More specifically, what populations were targeted to receive what mix of services? How did States choose to administer their programs and integrate the waivers with other long-term care programs? How has eligibility been determined? What steps do States take to screen and enroll waiver applicants? How is quality of care addressed? Do States implement data systems to effectively manage and study the effects of their waiver programs?

Data with which to answer most of these issues about waiver program design and operating characteristics was for the most part taken from the results of annual surveys of State waiver programs conducted as part of this evaluation.

CLIENT TARGETING EFFECTIVENESS

The second evaluation issue relates to the extent to which States were successful at targeting the waiver program to individuals who, "but for" the waiver, would have entered nursing homes. The issue is one of the most critical to the evaluation. If the process of outreach, screening, and assessment does not screen out people who would not enter a nursing home anyway, then the cost of serving those individuals becomes an "add-on" cost to Medicaid and undermines the potential for reduced institutional costs to offset the cost of the waiver program. Congress specifically intended the waiver program to be budget neutral to Medicaid.

Our examination of the literature on prior research and evaluations related to home and community-based care suggests that high client targeting effectiveness is not within the current state-of-the-art (U.S. Comptroller General, 1979; GAO, 1983; DHHS Channeling Final Report, 1986; DHHS Report to the Congress: Studies Evaluating Medicaid Home and Community-Based Care Waivers, 1984; Branch and Stuart, 1984; Berkeley Planning Associates, 1984; Hughes, 1985; Doty, 1984; Weissert, 1985; Hedrick and Inui, 1986). Our review of HCFA-funded home and community care demonstrations



during the early 1980s indicates that only 15-20 percent of control group individuals actually entered nursing homes. This meant that the general ability of the demonstration programs to restrict (target) eligibility and services to a population that was thought to be at extremely high risk of nursing home entry was no better than one in five.

Despite rigorous screening criteria used for the ambitious \$45 million DHHS National Long-Term Care Channeling Demonstrations, which sought to channel extremely old, sick and frail elderly patients into home care and away from institutions, the evaluation report released in late 1986 concluded the following:

- Channeling increased formal community service use but had no significant effect on informal caregiving.
- Despite success in targeting an extremely frail population, channeling did not identify a population at high risk of nursing home placement and did not substantially reduce nursing home use.
- The channeling population was frequently hospitalized and made heavy use of physicians and other medical services. Channeling did not affect these types of service use.
- The cost of expanding case management and community services were not offset by reductions in nursing home or other costs.

At the same time, although outcome measures failed to show improved client functioning, channeling reduced the unmet needs of clients and increased the satisfaction of clients and caregivers with service arrangements and with quality of life. Mathematica's final report concludes that:

"The channeling population turned out to have relatively low risk of institutionalization despite state of the art screening criteria and assessment instruments. Since channeling was designed there have been no new research suggesting alternative screening instruments for community care populations that appear substantially better able to separate those who will go into nursing homes from those who will stay in the community."

The channeling demonstration found that the control group had no significant difference in nursing home use than the treatment group who received channeling case management and home and community care services. Very few eligibles came from nursing homes, nursing home preadmission screening programs, or nursing home

waiting lists. Even with their most sophisticated screening instruments, the resulting targeting effectiveness was insufficient to discriminate between those who will and those who will not become nursing home entrants.

There are two recent evaluations of home and community care for the aged and disabled that do offer some evidence that reasonable population targeting is achievable. The first is an evaluation of Connecticut's home and community care waiver conducted by La Jolla Management Corporation (La Jolla, 1985). Using county level nursing home use and expenditure data, La Jolla concluded that the Connecticut waiver services were targeted sufficiently well to individuals at high risk of nursing home entry to render the program cost-effective. Average monthly waiver client cost at home was 1/2 the nursing home rate. However, this program carefully targeted its services to hospitalized aged persons needing post-discharge aftercare. Most waiver programs select their clients from the community at large, making client targeting much more tricky.

The South Carolina Long Term Care Project (Blackman et al, 1985) evaluation found that over an 18-month period, experimental group clients had significantly fewer nursing home admissions and a 38 percent reduction in nursing home use. The South Carolina project served a highly disabled population with high nursing home use among the control group (59 percent after 18 months); the comparable experimental rate was 43 percent. The average age of the control and treatment groups was 74; roughly 60 percent in each group were widowed; one in five lived alone, while half lived with children and other relatives. Both groups were severely impaired.

Evaluators attributed the unusual success of the South Carolina demonstration to the State's mandatory preadmission screening program from which it received all its clients, neutral initial assessment and case management functions not tied to any service providers, continuous follow-up with reassessment, and staff perseverance (Nocks et al, 1986). Given the success with client targeting, the demonstration reported a small saving to both the Medicaid and Medicare programs.

The issue of client targeting and adequate waiver screening becomes even more important given results of the 1982 Long-Term Care Survey of impaired elderly living in the community (Macken, 1986). Of 36,000 Medicare enrollees living in the

community who were surveyed, only 20 percent reported any impairment whatsoever in terms of activities of daily living (eating, dressing, bathing, toileting, moving about) over the preceding three months. Personal visits were made to these individuals reporting some impairment in order to determine their demographic and socioeconomic characteristics, as well as to learn more concerning their functional impairments. Most of the impaired elderly are older (75+), female, black and near the poverty level. Cognitive functioning among impaired elderly living in the community was found to be relatively intact until 85 years of age and over. The combined effects of functional impairments in key ADL and IADL areas and impaired cognitive functioning appear to provide a strong impetus toward the need for full-time nursing home care. Only about 20 percent of persons aged 85 years or over are in nursing homes, and only 35 percent of persons aged 85 years or over living in the community are functionally impaired (Macken, 1986).

The importance of this information is twofold. Most importantly, elders at highest risk of institutionalization are likely to be in the 85+ age bracket and have multiple functional and cognitive impairments. Even given this profile, only 20 percent end up in nursing homes! The vast majority remain in the community with assistance from informal caregivers (Soldo, 1983) or little assistance at all. The point is that the pool of waiver program candidates who, but for the waiver, would enter a nursing home is very small given the total aged population. Further, they can be very hard to identify. This increases the chances that targeting errors can be made.

Although objective measures of health, functional and cognitive status coupled with marital status, living arrangements and informal supports would seem to be relevant predictors of high risk of nursing home entry, they have not worked well in the past. Perhaps there are also unmeasured conditions which are unique to a person's own individuality. Private convictions about self-reliance and upon whom individuals are willing to depend may be the major factors that influence decisions for nursing home entry. These intangibles do not fit well with the existing targeting screens used for home and community care programming.

Half of the States operating waiver programs for the aged and disabled respond to the problem of client targeting by linking their eligibility process to some form of a nursing home preadmission screening (PAS) programs (La Jolla Waiver Survey, 1986).

State nursing home preadmission screening methods differ widely in the extent to which other than medical criteria are used; how the availability of informal support is evaluated and used to make denial decisions, whether screens are applied to private pay patients (most are likely to become Medicaid eligible within 6 months to a year), whether the screens are applied statewide, and the professional qualifications of the screening teams (Knowlton et al, 1982).

Relatively few data are available concerning the efficacy of nursing home preadmission screening (InterStudy, March 1986). Few States have studied the impact of their PAS programs. Virginia found that of over 10,000 nursing home applicants screened in 1985, 24 percent were denied admission. A follow-up study of the denied applicants indicated that only 8 percent required Medicaid-funded nursing home stays within six months. This finding suggests that the Virginia PAS is very effective in diverting individuals from nursing home entry by finding home and community care solutions. Most of the individuals denied, remained in their home or community with no particular jeopardy to their well-being (Capitman, Virginia Center on Aging, October, 1985). Virginia screening staffs are exceptionally well trained and organized.

The Colorado Foundation for Medical Care is one of a handful of PROs doing medical evaluations for long-term care services. Experience from 1979 to the present indicates that the number of nursing home placements significantly decreases if there is a sound PAS system in effect. (Colorado, 1985).

The above discussion has concentrated on client targeting for the aged and disabled. Other significant priority population groups for the Section 2176 waivers are the developmentally disabled (DD) and chronically mentally ill (CMI). The DD population is primarily composed of the mentally retarded.

At the time the Section 2176 legislation was enacted in 1981, home and community-based services for the developmentally disabled were far more developed than for the impaired elderly. In concert with Federal and State deinstitutionalization policies in the 1960s and 70s, a network of community-based agencies had developed to provide the residential, habilitative, vocational and case management services needed to maintain DD persons in non-institutional settings. These provider networks are comprised largely of private non-profit agencies which operate under contract to

State Mental Health and Mental Retardation agencies. Prior to enactment of Section 2176, however, it was generally quite difficult for these agencies to secure Medicaid reimbursement for the services they provided, given the medical orientation of the Medicaid program. Under the Section 2176 waiver, many of these agencies are becoming Medicaid certified, and for the first time are receiving Medicaid funds for a portion of their total operating revenues.

The primary impetus for the home and community care waiver program for the developmentally disabled came from advocacy efforts and judicial decrees which have established the right of mentally disabled persons to live in the least restrictive setting permitted by their disability. Indeed, the cost of community services has put severe financial strain on the budgets of State Mental Health/Mental Retardation agencies. It has proven difficult for States to divert dollars as well as clients to community-based programs, given the fixed costs of maintaining the large-scale public institutions which remain in operation despite serving a declining resident population.

Since the financing of institutional care for the developmentally disabled and chronically mentally ill has traditionally been the responsibility of State governments, the Federal government has generally not sponsored research and demonstration efforts to examine the cost-effectiveness of community care for these populations. However, as the Federal government has come to finance an increasing proportion of institutional care for the disabled -- due to the rapid growth of the ICF-MR facility and the increasing use of nursing homes by the deinstitutionalized chronically mentally ill -- there has been increasing incentive for the Federal government to assess the relative costs of community care for these population groups as well. In the last few years, there have been a growing number of studies comparing the costs of community and institutional care for the developmentally disabled (Human Services Research Institute, 1983).

The client targeting issue with the DD/CMI groups is the extent to which persons already living in residential care settings would, but for the waiver services and financing, return to ICF-MR facilities for care. Conversely, would those deinstitutionalized by court decree be able to survive in the community without waiver services? Another way to frame the issue is the extent to which States did and will continue to deinstitutionalize the mentally retarded with or without financial help

from the waiver program? Very little research exists on this issue (Maine,1986; Burwell,1986). Most of the developmentally disabled people served by the Section 2176 waivers are already deinstitutionalized and living in residential settings. Thus, the waivers are less likely to result in decreased institutional care. This does not in any way mean that the waiver services does not improve the quality of life for those individuals living in the community. It simply means that near term Medicaid use rates and expenditures for ICF-MR facilities may not decline as Congress intended.

In summary, the issue of proper client targeting of waiver services is central to the Congressional assumptions underlying the program. It is also central to this evaluation. In all four case studies reported in this volume the effectiveness of client targeting was given special attention.

IMPACTS ON MEDICAID-FUNDED NURSING HOME USE AND EXPENDITURES

The impact of 2176 waivers on use and cost of long term care programs is partly dependent of the extent the waivers target clients effectively, partly on the relative magnitude of nursing homes versus waiver service costs, and partly on the degree that waiver services can delay nursing home entry. In theory, the waiver program should reduce the demand for nursing home beds and lower Medicaid recipient use and expenditures. If there were no other pressures to influence supply or demand for beds the evaluation of waiver impacts would be relatively straightforward. However, the waiver programs are only a small part of the overall context of long-term care within a State.

The first and most obvious difficulty in detecting waiver-induced reduction in nursing home bed usage is the fact that waiver recipients to date are a small fraction of the total long-term care population within a given State. In 1985, the average penetration rate of aged and disabled waivers was 3 percent of the Medicaid-eligible aged/disabled nursing home population. Statistical measurement of waiver impacts becomes problematic using State-level aggregate data. Penetration rates for the DD/CMI target group is higher; around 20 to 25 percent. This level of penetration is sufficient to detect waiver impact on the demand for ICF-MR services.

To complicate this measurement problem, there are strong influences within a State's overall long-term care continuum of services to confound measurement of any waiver induced effect on the supply and demand for Medicaid-funded nursing home care. On the demand side some of these external pressures include: hospital and community back-up of patients waiting for nursing home placement, earlier hospital discharges due to Medicare prospective payment, revisions in Medicare and other private health insurance policies, demographic changes, revisions in State policies toward financing and delivery of care to the DD/CMI population, availability of other public and private home and community care services, and changing attitudes of informal caregivers.

On the supply side, State certificate-of-need (CON) can limit supply of Medicaid certified beds and reluctance of facility operators to admit Medicaid patients will cause hospital and community back-up of Medicaid patients waiting for nursing home placement. In this case, the effect of reduced demand for beds caused by availability of waiver services may only have the effect of reducing the length of the waiting line, and have no short-term effect on Medicaid nursing home use or expenditures. In the longer term, depending on State CON policies, the supply of nursing home beds will adjust to market forces.

The effect waivers may have on Medicaid nursing home use and expenditures is, therefore, affected by many factors over which Medicaid agencies have no control. Attribution of statewide or aggregate reduction in Medicaid nursing home use or expenditures due to a waiver program will be difficult. This is why our evaluation puts emphasis on detection of waiver effects at the person-based level.

COST-SHIFTS TO AND FROM OTHER PUBLIC AND PRIVATE PROGRAMS

This evaluation issue considers the financial impact of the waiver program in a broader context than simply the Medicaid cost of waiver services versus nursing homes. The issue has four parts.

Although home and community care waivers may reduce unnecessary nursing home stays and expenditures, an unwanted effect may be a net increase in State Medicaid expenditures due to increases in the demand for traditional Medicaid

hospital, physician and other services. That is, home and community residency in lieu of an institution may result in higher hospital admissions, greater access to physicians and drugs, etc. The new Departmental regulations for Section 2176 require States to consider these spill-over effects when considering the financial feasibility of their waiver programs and the new annual waiver statistical reports (HCFA Form 372) take explicit account of these impacts. Our analysis of limited HCFA 372 data offers no evidence that cost spill-overs offset potential savings from waiver programs. That is, acute care Medicaid costs for waiver recipients are about the same as those for institutionalized cohorts.

The second part of the cost-shift issue is the fact that States have strong incentives to use the waiver program to "re-finance" service delivery previously funded by other State government programs; e.g., Title XX social services block grant, Title III aging services block grant, and State budgets for the developmentally disabled or mentally ill. We consider it quite rational for States to do this. The re-financing can be achieved by simply substituting services previously funded by block grant and State funds and shift the cost to the Federally-matched Medicaid program. This will free block grant resources to be spread over a wider population in need. What States may lose in State-matched Medicaid funds may be more than offset by savings in block grant and State budget resources. DD/CMI waivers contain strong incentives for States to shift costs of State-funded institutions for the mentally retarded and chronically mentally ill to Medicaid-funded waiver services; i.e., a re-financing of the already existing residential care network. There is nothing in the Section 2176 or DHSS regulations to explicitly preclude this re-financing option.

Part three of the cost-shift issue is the potential effect of the waivers on other Federal budgets such as Medicare, Supplementary Security Income (SSI), food stamps, and HUD housing subsidies. This evaluation will deal only with Medicare and SSI spill-overs. Regarding Medicare, the waivers could affect Medicare spending either way. On the one hand, waiver services for dual-eligibles could reduce the demand for Medicare-funded nursing home care. On the other, living at home or in the community might increase Medicare inpatient and physician costs. A 1983 study of the California MSSP waiver (aged and disabled) indicated that Medicare was largely unaffected by waiver participation (Berkeley, 1983).

The last part of the cost-shift issue involves the possible supplantation of private caregiver support with the new availability of home and community care waiver services. Given the extreme burden borne by many caregivers (Soldo, 1983) the new availability of home care services may induce caregivers to shift their burden to waiver-funded providers of care. The literature does not support this argument (Soldo, 1983; Miller, 1983; Berkeley Planning, 1984; Mathematica, 1986). There is evidence that respite care strengthens and lengthens a family caregiver's capacity to continue care, although most caregivers decline needed respite care for emotional reasons (University of California, San Francisco, 1984). Although services provided by private voluntary organizations such as United Way may be supplanted by public-funded waiver services, we know of no studies that show evidence that this actually happens.

QUALITY OF WAIVER SERVICES

What is the quality of waiver services in terms of mix and appropriateness to best improve quality of life and delay unnecessary institutionalization? Variations in clients' health, functional and cognitive disabilities, strength of caregiver support, living arrangements and lifestyle preferences all call for different service mixes and intensity. Outcome measures available to investigate quality of care are measured combinations of services and intensity that are most effective in delaying nursing home admission, morbidity rates, mortality rates, client satisfaction and comfort, dignity, and improved quality of life for caregivers.

General quality of life measures are beyond the scope of this evaluation. Most of the prior literature on the subject indicates that, other than for slightly higher contentment levels, recipients do not enjoy significant improvement in health status or longer life over those who do not receive the services (Mathematica, 1986; Berkeley Planning, 1984).

The scope of this evaluation does include study of process measures associated with quality of care. Process measures include descriptions of State waiver quality assurance methods, case management and monitoring methods, preadmission screening criteria, and provider certification standards. These data are obtained for the evaluation through annual surveys of all State waiver programs and selected case

studies. The case studies include measurement of service efficacy as a factor in delayed nursing home admissions.

The efficacy of waiver services in terms of delayed nursing home admission is considered by this evaluation as a quality of care outcome measure; indeed, it is a primary objective of the waiver program. Prior research and evaluation on service efficacy is limited, although study of earlier home and community care demonstrations has produced mixed results (Berkeley Planning, 1984). The National Channeling Demonstration (Mathematica, 1986) concluded that case management (determining need, arranging for services and monitoring) was the only cost-beneficial service since existing resources in the community were generally adequate given knowledgeable case managers.

In the case studies conducted for this evaluation the issue of service efficacy (given certain client characteristics, what mix of waiver services are most effective in delaying nursing home entry) is addressed using person-based data. Services and service mix provided to various groupings of waiver recipients is compared with observed delays in nursing home admission.

ATTRIBUTES OF A SUCCESSFUL WAIVER PROGRAM

What are the attributes of a successful waiver program, in terms of both quality and cost-effectiveness? This last evaluation issue represents a summation of findings in terms of how the waiver program might be improved. The scope of the issue ranges from what has been learned about the determinants of effective administrative models, client targeting criteria and strategies, optimal service mix, exemplary case management and preadmission screening models, relative costs of services, cost-effectiveness, cost-shifting to and from other programs, and which types of waiver programs are associated with desired outcomes. The evaluation final report will report any practices that States feel are particularly exemplary.

CHAPTER THREE

PROFILE OF MEDICAID HOME AND COMMUNITY-BASED CARE WAIVERS, 1985

The first evaluation issue addresses the question of how states have used their Section 2176 waiver authority. Since HCFA has no comprehensive data source on waiver program characteristics that corresponds to a uniform time period, La Jolla Management Corporation undertook a mail survey of all waiver states, followed up by telephone where necessary. This Chapter presents highlights of the results in terms of geographic coverage, enrollment levels, client characteristics, service coverage, expenditures, cost-effectiveness, and quality assurance. The survey also asked States to indicate areas where they felt the waiver program could be improved. States were asked to depict their waivers as of September 30, 1985.¹

GEOGRAPHIC COVERAGE

Survey results indicate a high degree of interest among states in the waiver program. Further, this interest is high in all geographic areas of the country for both the aged/ disabled (A/D) and the developmentally disabled/chronically mentally ill (DD/CMI) target groups. The maps on Exhibits 3-1 and 3-2 following this page show the geographic distribution and size of waiver programs for each of the target groups. In all, there were 75 distinct waiver programs in 42 States by the end of FY1985. A year earlier there were only 67 waivers programs in operation. Given current applications to HCFA for new waivers and renewals of existing ones, the popularity of Section 2176 is sustained and growing.

Among the 42 States, 34 waivers were targeted exclusively to the aged or physically disabled (A/D) population while 35 served developmentally disabled and chronically mentally ill (DD/CMI) people. Most of the DD/CMI group are mentally retarded. Six waivers served a combination of both general target groups. By DHHS regulation, the combination programs are no longer permitted. All new waivers are to be population group specific.

EXHIBIT 3-1

States with Active Waivers for the
Aged and/or Physically Disabled
as of September 30, 1985

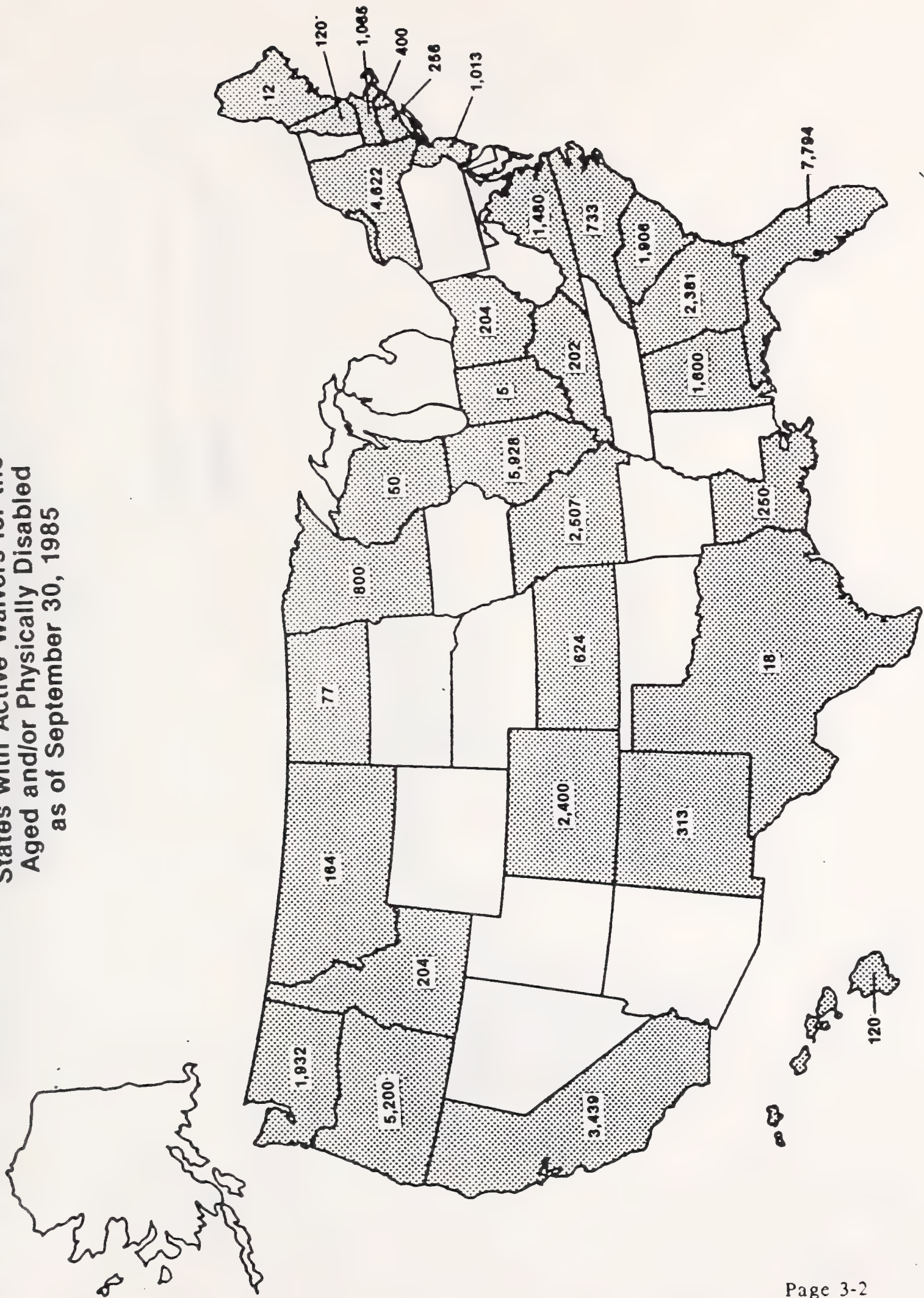
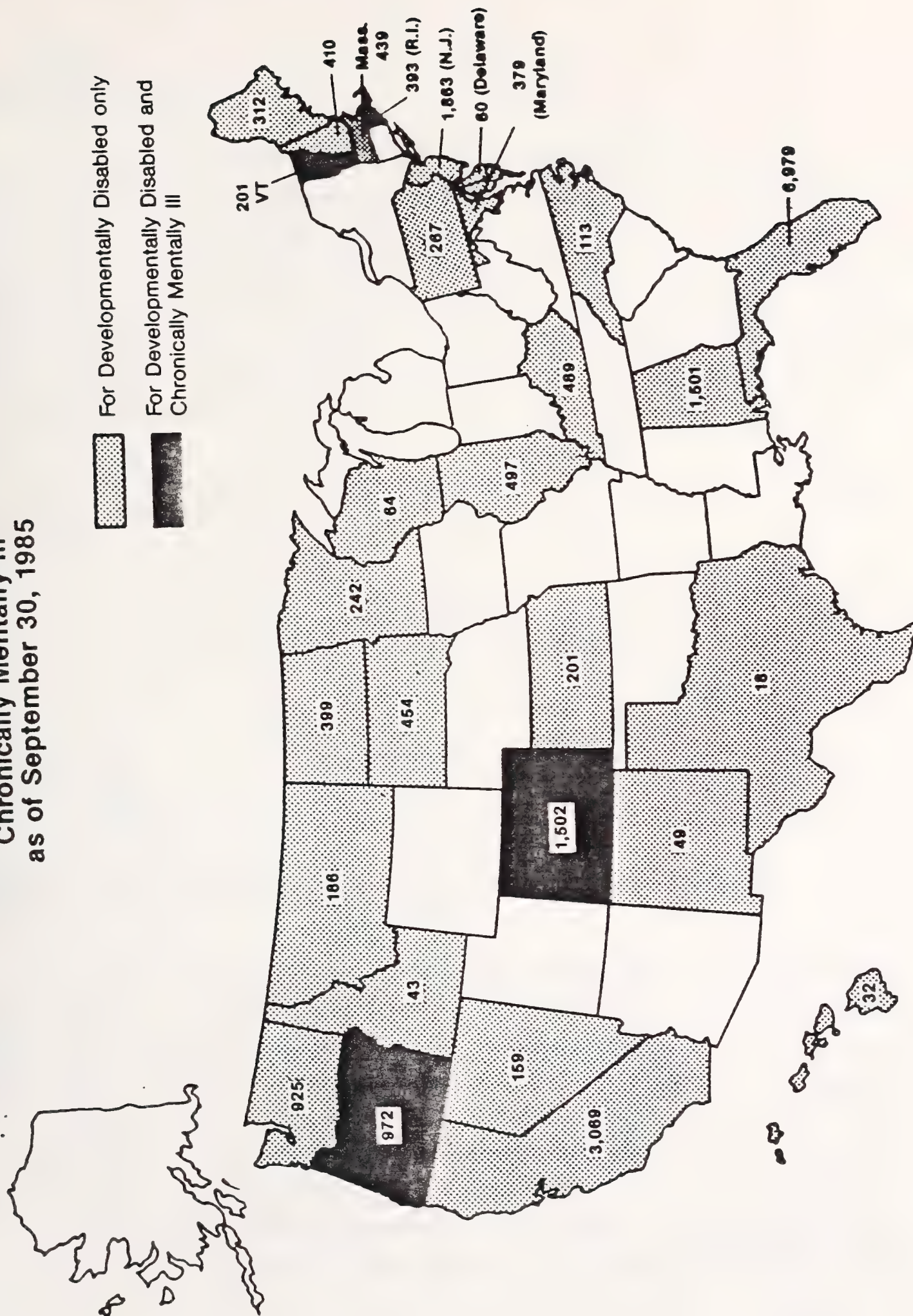


EXHIBIT 3-2

States with Active Waivers for the Developmentally Disabled and/or Chronically Mentally Ill as of September 30, 1985



ENROLLMENT LEVELS

From start-up to September 30, 1985 approximately 125,000 people have been served by the waivers. About three-quarters of these recipients were A/D and one-quarter DD/CMI. That is, the enrollment-to-date level for the A/D groups was nearly 92,000 in contrast to a DD/CMI enrollment level of 32,000. Although the combined enrollment level of 125,000 is much lower than States had originally projected in their waiver applications, the count represents a significant number of people. Exhibit 3-3 provides inception-to-date and current recipient caseload levels, by State and target group.

The growth of the waiver since 1981 has been dramatic. The annual recipient count has climbed steadily:

Exhibit 3-4
Growth in Annual Waiver Recipients, By Target Group

CY	A/D	DD/CMI	Total
-----	-----	-----	-----
1982	6,389	10,253	16,642
1983	31,735	16,365	48,100
1984	45,934	21,823	67,757
1985 (Sept,1985)	47,819	22,218	70,037

Source: La Jolla Waiver Survey (1985)

As of September 30, 1985 there were just over 70,000 people being served by the waiver programs. This shows considerable growth since 1982. Programs for the A/D groups account for two-thirds of the total active caseload, while DD/CMI individuals comprise the other third. There were only 1,109 CMI individuals in waiver programs. This ratio is not surprising given the relative representation of the elderly in the population. Florida and Illinois have the largest A/D waivers while Florida and California serve the largest DD/CMI group. Five States (Florida, California, Illinois, New York, and Oregon) represent 56 percent of the national A/D caseload; while five (California, Alabama, Colorado, Florida, and New Jersey) account for 67 percent of the

NUMBER AND TYPE OF WAIVER PROGRAMS
AND ENROLLEES

A/D Waiver Programs -----	Effective Date -----	Total Enrollees Ever as of 9/30/85 -----	Caseload on 9/30/85 <u>a/</u> -----
AL	10/01/84	1780	1600
CA	07/01/83	4800	3331
CA	07/01/83	161	108
CN	10/01/82	1060	256
CO	07/01/82	5500	2400
FL	04/01/82	25696	7507
FL	07/01/85	351	287
GA	10/01/81	5630	2381
HI	08/01/83	49	28
HI	08/15/83	161	92
IA <u>b/c/</u>	01/10/82	78	0
ID <u>d/</u>	01/01/84	217	204
IL	07/01/83	11925 <u>e/</u>	5928
IN	09/01/84	6	5
KS <u>d/</u>	03/22/82	1372	624
KY	07/01/83	389	202
LA	01/07/85	450	250
MA	07/01/83	83	65
MA	01/01/83	1231	1000
ME	05/01/85	24	12
MN	07/23/82	1900	800
MO	01/01/84	26	17
MO	04/22/82	4335	2490
MT <u>d/</u>	07/01/83	242	164
NC	07/01/82	1044	733
ND	10/01/83	180	77
NH	07/01/84	167	120
NJ	10/01/83	1666	1013
NM	07/01/83	509	313
NY	01/01/83	4734 <u>f/</u>	4622
OH	07/01/84	350	204
OR <u>g/</u>	12/23/81	5304	5200
RI	01/01/82	850	400
SC	10/01/84	3500	1906
TX	01/01/83	43	18
UT <u>b/c/</u>	10/20/82	8	0
VA	06/18/82	1165	1480
WA	01/01/83	4596	1932
WI	01/01/85	50	50
WV <u>b/d/</u>	07/01/82	297	0

D/D
Waiver
Programs

AL	10/01/82	1850	1501
CA	07/01/82	3812	3069
CO	10/01/82	1379	1169
DE	07/01/83	72	60
FL	04/01/82	8263	6979
HI	07/01/83	33	32
ID <u>d/</u>	01/01/84	45	43
IL	12/01/83	542	497
KS <u>d/</u>	03/22/82	442	201
KY	04/01/83	568	489
LA <u>b/</u>	04/01/82	3250	0
MA	01/01/84	563	439
MD	02/13/84	418	379
ME	07/01/83	312	312
MN	07/01/84	246	242
MT <u>d/</u>	12/01/81	190	186
NC	07/01/83	129	113
ND	04/01/83	495	399
NH	09/01/83	425	410
NJ	10/01/82	2105	1863
NM	07/01/83	55	49

NUMBER AND TYPE OF WAIVER PROGRAMS
AND ENROLLEES

D/D Waiver Programs -----	Effective Date -----	Total Enrollees Ever as of 9/30/85 -----	Caseload on 9/30/85 a/ -----
NV	07/01/82	556	159
OK	01/01/85	0	0
OR f/	12/23/81	1886	400
PA	07/01/83	157	157
PA	07/01/83	112	110
RI	07/01/83	286	238
SD	06/01/82	712	454
TX	09/01/85	18	18
VT	04/01/82	234	152
WA	12/01/83	1038	925
WI	10/06/83	66	64
WV b/d/	07/01/82	50	0
CMI			
Waiver			
Programs			

CO	10/01/82	362	333
OR h/	12/23/81	875	572
RI	07/01/83	185	155
VT	04/01/82	600	49

Totals:		124260	70037

Sub-total A/D:		91929	47819
Sub-total DD:		30309	21109
Sub-total CMI:		2022	1109

a/ For several States the date for which caseload has been reported is slightly different.

b/ Program has been terminated.

c/ These States' programs are reported as A/D programs. Although they are combined programs, State was not able to segregate data

d/ Enrollees in these States were reported separately although the programs are combined programs.

e/ This figure represents total unduplicated recipients in Year 2 of Illinois' waiver, not enrollees.

f/ This figure represents total unduplicated recipients in Year 3 of New York's waiver, not enrollees. Sum is inflated because it contains waiver service recipients plus State plan service recipients.

g/ This figure represents total unduplicated recipients in Year 4 of Oregon's waiver, not enrollees.

h/ This figure represents total unduplicated recipients in Year 2 of Oregon's waiver, not enrollees.

Source: La Jolla Waiver Survey (1985)

DD/CMI caseload. States vary widely in the size of their programs. A/D waivers reported size ranges from a low of 5 people in Indiana to a high of 7,794 in Florida. DD waivers range from a low of 18 in Texas to a high of 6,979 in Florida.

Turnover rates for A/D waiver recipients are considerably higher (about 50 percent per year) than for the DD/CMI group (20 percent). About one-quarter of the A/D group leave the waiver program before six months, whereas half of the DD/CMI recipients were still in the waiver program after two years. This reflects higher mortality and nursing home entry rates for the A/D population. Individuals in the DD/CMI group may now spend most of their lives outside rather than inside institutions due to the availability of home and community care services.

As of late 1985, although 70,000 individuals were being helped by waiver services, their numbers in terms of the Medicaid long-term care population were still relatively low. The penetration rate (ratio of waiver recipients to nursing home residents plus waiver recipients) for the A/D population was only 4 percent overall. Only three States had rates above 10 percent (Oregon 29.9%, Florida 17.1%, Colorado 14.0%, South Carolina 13.3%). On the other hand, waiver penetration of the DD/CMI population averaged 23 percent, ranging from a low of 2.7 percent in Wisconsin to a high of 68.4 percent in Florida. In other words, nearly one in four of the Medicaid-eligible DD/CMI population nationally receives waiver services.

CLIENT CHARACTERISTICS

The A/D and DD/CMI target groups are quite different in terms of characteristics. In general, the A/D population tends to be slightly younger than nursing home residents but equally impaired in terms of health and functional dependency. The DD/CMI group tends to be dominated by the mentally retarded, but not equal to the retardation severity of those living in ICF-MRs and other institutions. Most waiver recipients become eligible for waiver services while living in the community, rather than being deinstitutionalized.

Age, Marital Status and Living Arrangements

Four-fifths of the A/D population is 65 years of age or older. One-fifth of the aged or disabled population is 85 or above. Most of these individuals are female (75

percent) and live in a private residence. The great majority (83 percent) of the A/D population enter the waiver program from private residences; only 2.4 percent entered from nursing homes. Eighty percent are either widowed, divorced or separated. In contrast, the DD/CMI population is young and concentrated between the ages of 22 and 39; and most are male (54 percent). Only one-third of DD/CMI recipients enter the waiver program from ICF-MRs or other institutional settings. Approximately 60 percent enter from private or group residences.

In sum, less than one-third of the population in waiver programs enter from institutional settings. The emphasis of the waivers is not, therefore, to deinstitutionalize people; rather, they are used by States to avoid or to delay institutionalization.

Health and Functional Status

The health and functional status of A/D recipients is generally poor. The prevalence of disease is quite high; 37 percent suffered from circulatory diseases, 14 percent cancers, 10 percent nervous disorders, and 10 percent had musculoskeletal disorders. Five percent of A/D recipients have mental disorders as a primary diagnosis. Approximately 45 percent are incontinent. This health status profile corresponds to cohorts residing in nursing homes with the exception that the incidence of mental disorders (usually cognitive impairment or senility) is much higher for nursing home residents; 20 percent of nursing home residents as compared to only 5 percent of A/D waiver recipients.

The DD/CMI population is composed primarily (95 percent) of mentally retarded individuals. These waiver recipients do, however, differ substantially from their age cohorts living in ICF-MR facilities. Mildly and moderately retarded persons comprise only 22 percent of the ICF-MR population, but 53 percent of the waiver population. Severely retarded persons comprise a somewhat higher proportion of waiver recipients (30 percent) than ICF-MR recipients (25 percent). Profoundly retarded persons comprise over half of the ICF-MR population in 1982, and 17 percent of the waiver population in 1985. Thus, half of the recipients are mild or moderately retarded and half are severely or profoundly retarded. This distribution of waiver recipients by level of retardation suggests that waiver recipients are less impaired than the ICF-MR

population. This is logical since one would expect the waiver program to concentrate on higher functioning individuals who can be served equally as well in the community.

WAIVER SERVICES

States have considerable flexibility in determining what services to provide under the waiver. These services include:

<u>Service</u>	<u>Explanation</u>
Case Management	Client assessment, arranging for service, monitoring, reassessment
Homemaker	Includes cleaning, bathing, grooming, and feeding
Home Health Aide	Under nursing supervision, check dressings, monitor medication consumption, check on diet, etc.
Personal Care	Similar to homemaker, usually performed by less skilled person
Adult Day Care	Variety of health and social services typically provided at a community center
Habilitation	Generic term for broad array of developmental training services and residential care ,usually for DD/CMI individuals
Residential Services lived in by DD/CMI clients	Services of those who staff the home
Respite Care	Caregiver relief, usually offered for several hours or a day

States may also request approval to provide home and community services other than those listed above such as non-medical transportation, minor structural modifications to the home, counseling, crisis intervention, emergency alarm response systems, moving assistance and medical supplies. About half the States requested use of "other" services. Coverage of room and board and vocational services is prohibited in the legislation; since most waiver recipients receive full SSI cash benefits outside

of a nursing home, SSI is considered the proper funding source for the basic shelter and living needs of waiver clients.

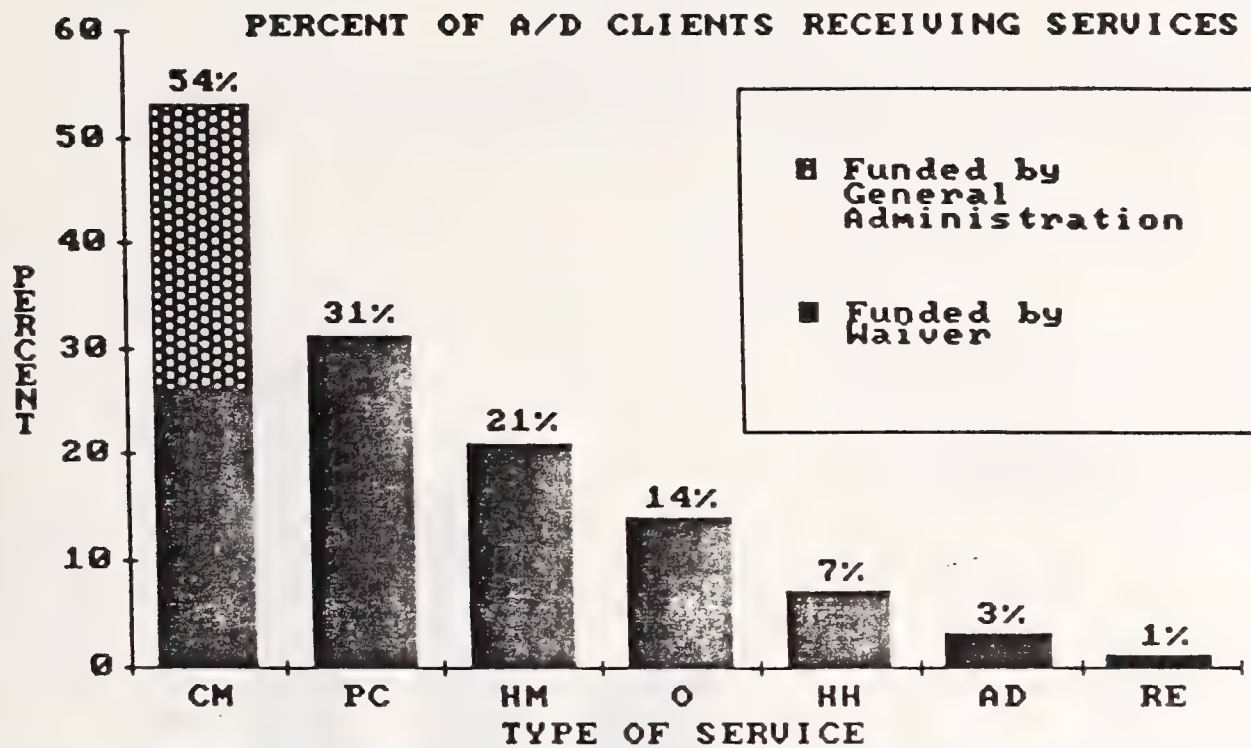
Exhibits 3-5 and 3-6 on the following page illustrate how States have structured service priorities for each target group. Over one-half of A/D recipients received personal care or homemaker services. Only 26 percent of the A/D population in 1985 received case management as a waived service. However, when States who provide case management services to waiver clients funded out of Medicaid administrative funds is considered, the percent rises to 54 percent of all A/D recipients. This tendency of States to fund case management from administrative rather than waiver funds may be due to the potential for a higher federal matching rate, where physician or skilled nursing personnel may be involved. Respite care was received by only 1 percent of the A/D population. Adult day care was provided to only 3 percent of the A/D group. "Other" services include skilled nursing, therapies, medical supplies, transportation, meals, etc.

Exhibit 3-6 shows that services used most frequently by DD/CMI clients are case management, habilitation, and residential services. Habilitation services encompass all the services provided in a day treatment program for developmentally disabled persons. The specific services are oriented to the individual's specific needs according to a plan of care. Sixty percent of DD/CMI recipients received case management as a waived service; although 92 percent received case management when the administratively funded case management services are taken into consideration. The more frequent use of case management services for the DD/CMI population is a good indicator of high State quality assurance for this more vulnerable population.

About half of all DD/CMI waiver clients (52 percent) live in group homes. These are usually staffed single-family dwellings housing between 3 and 12 recipients. Residential program staff may live in the home, or rotate shifts. Clients are generally out of the residence for at least part of the day during the regular workweek, participating in a developmental training program, sheltered workshop, or transitional employment program, depending on the skill level. The cost of residential program staff are often covered under the waiver, but the actual cost of room and board is not an allowable waiver service. These latter costs are generally paid for by clients

EXHIBIT 3-5

a/



KEY:

CM = Case Management

PC = Personal Care

HM = Homemaker

O = Other Services, including Skilled Nursing, Therapies, Medical Supplies, Transportation, Meals, etc.

HH = Home Health Aide

AD = Adult Day Health

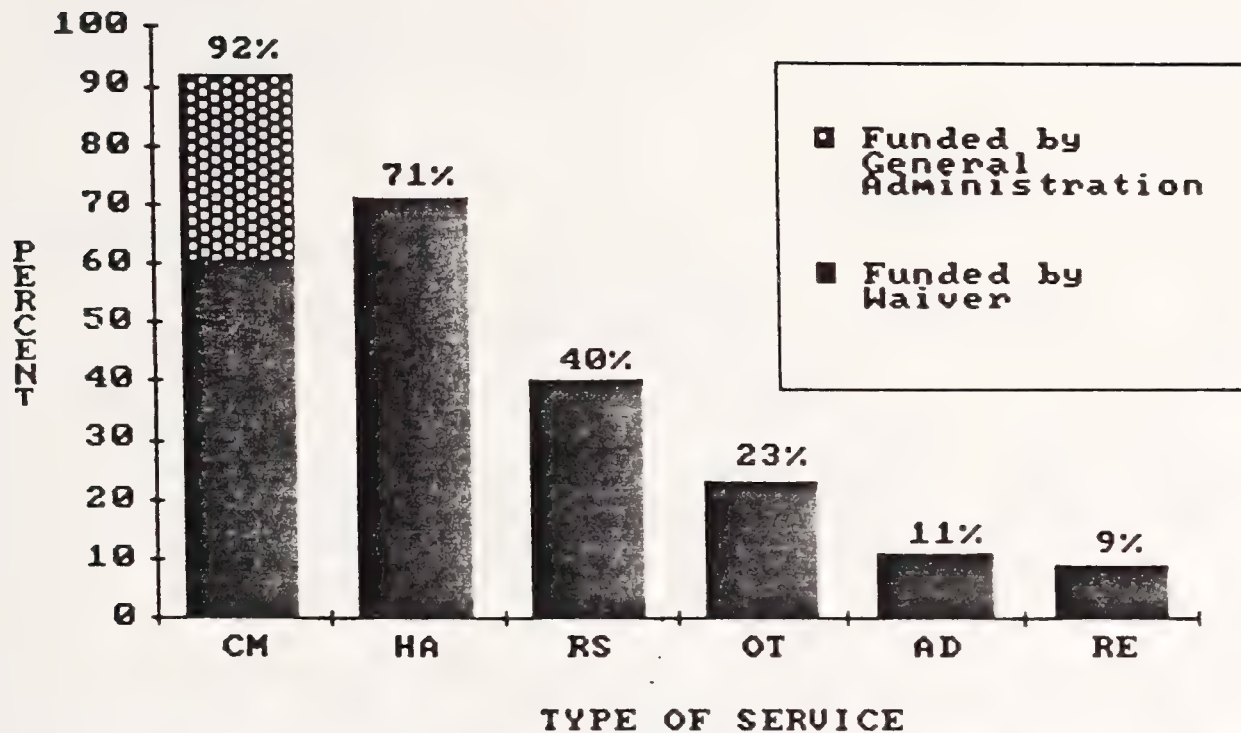
RE = Respite

a/ Utilization data are for each waiver service delivered during the period 10/1/84 - 9/30/85. For several States the year reported is slightly different.

Source: La Jolla Waiver Survey (1985)

EXHIBIT 3-6
PERCENT OF DD/CFI CLIENTS RECEIVING SERVICE

a/



KEY:

CM = Case Management
HA = Habilitation
RS = Residential Services
OT = Other
AD = Adult Day Care
RE = Respite

a/ Utilization data are for each waiver service delivered during the period 10/1/84 - 9/30/85.

Source: La Jolla Waiver Survey (1985)

using their SSI/SSP cash grants and general State funds. About one-third of the waiver recipients live at home with their parents. The remaining 15 percent live in either foster homes, supervised apartment programs or in other private residences.

EXPENDITURES

Total federal and State expenditures for the waiver program from FY1982 through FY1985 are provided in Exhibit 3-7:

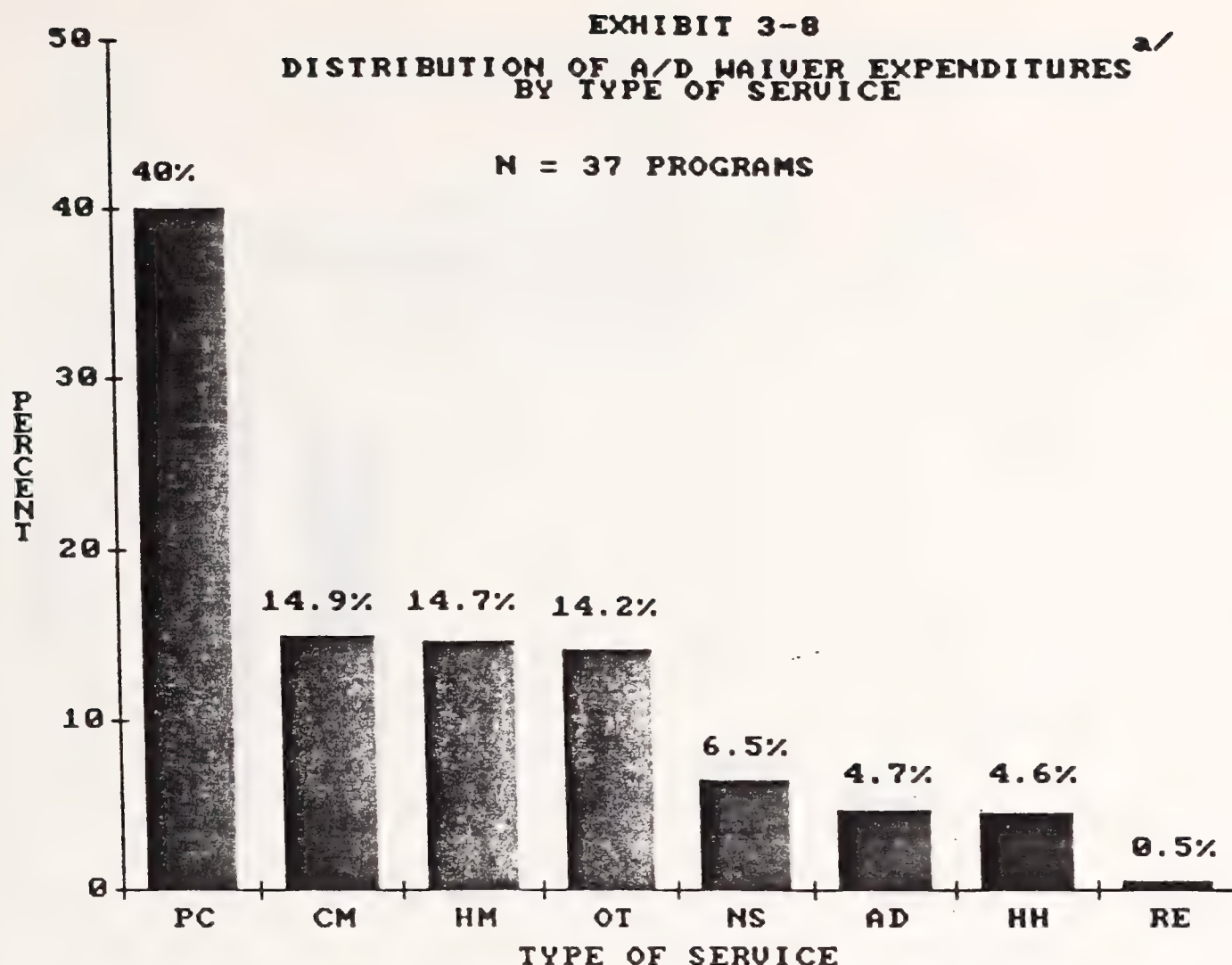
Exhibit 3-7
Annual Waiver Expenditures by Eligibility Group, FY 1982-85

<u>Fiscal Year</u>	<u>A/D</u>	<u>DD/CMI</u>	<u>Total</u>
1982	\$ 596,589	3,055,314	3,651,903
1983	\$ 19,518,626	60,638,320	80,156,947
1984	\$ 61,788,640	119,302,729	181,091,369
1985	\$ 96,015,448	161,273,676	257,289,124

Source: For FY 82,83,84, Form-64 Quarterly Reports; FY85, La Jolla Waiver Survey (1985). Survey data is payment by date of service.

Fourth quarter FY1985 waiver expenditures based on HCFA quarterly reports were \$85 million; suggesting that total annualized expenditures for the waiver program will approach \$400 million in FY1986. The annual rate of growth of the program between FY84 and FY85 was 42 percent. About 65 percent of total spending for waiver services in FY1985 was for the DD/CMI population. Although this group represents only one-third of all recipients, the cost per recipient (\$7,259) is much higher than for the A/D group (\$2,008).

Exhibits 3-8 and 3-9 on the following page shows the distribution of expenditures across the various waiver services for each of the two target populations. Most of the waiver expenditures (55 percent) for the A/D population went for homemaker and personal care services while 77 percent of the DD/CMI expenditures were for habilitation and residential services.

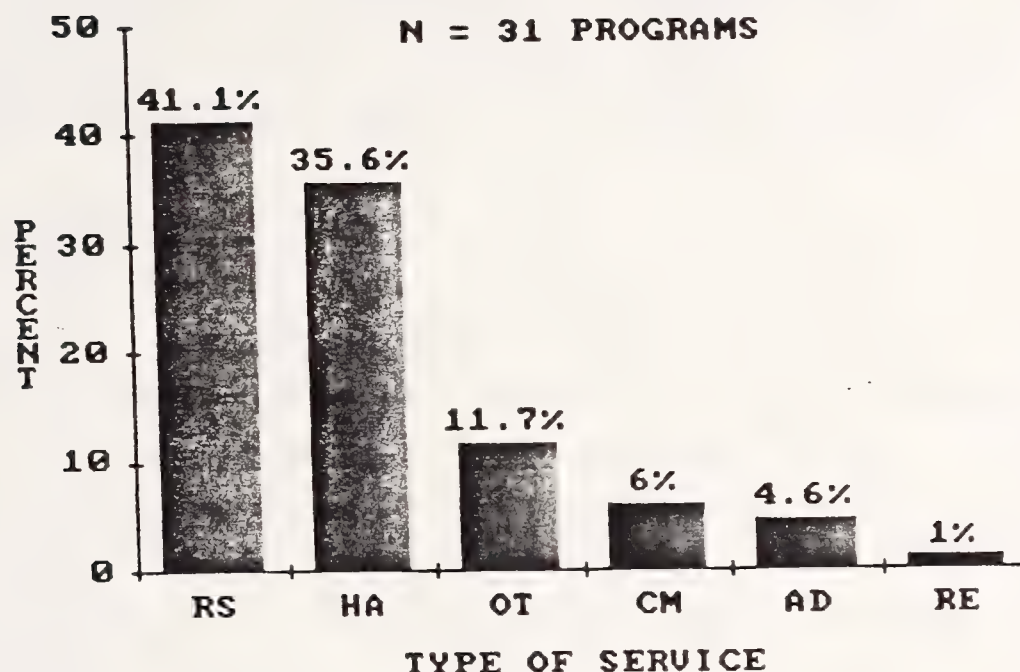


Total A/D 1985 Expenditures = \$96,015,448

Personal Care	=	\$38,412,541
Case Management	=	\$14,264,464
Homemaker	=	\$14,066,974
Other Services	=	\$13,612,023
Not Specified	=	\$ 6,234,773
Adult Day Health	=	\$ 4,522,897
Home Health Aide	=	\$ 4,447,403
Respite	=	\$ 454,373

^{a/} Expenditure data are for each waiver service delivered during the period 10/1/84 - 9/30/85. For several States the timeframe reported is slightly different. In the case of Oregon, expenditures reported were for calendar year 1983. Massachusetts was unable to respond.

EXHIBIT 3-9 a/
DISTRIBUTION OF DD/CMI EXPENDITURES
BY TYPE OF SERVICE



Total DD/CMI 1985 Expenditures = \$161,273,676

Residential	=	\$66,307,884
Habilitation	=	\$57,443,045
Other	=	\$18,888,130
Case Management	=	\$ 9,680,520
Adult Day Care	=	\$ 7,403,902
Respite	=	\$ 1,550,195

a/ Expenditure data are for each waiver service delivered during the period 10/1/84 - 9/30/85. For several States the timeframe reported is slightly different. The following States were unable to respond: Colorado (1 of 2 programs), Florida, Massachusetts, Minnesota, and Vermont.

Source: La Jolla Waiver Survey (1985)

The unit cost for A/D case management services ranges from a low of \$7.00 per hour in West Virginia to a high of \$43.84 in Connecticut. A/D personal care cost per hour ranges from a low of \$3.85 in Montana to a high of \$14.84 in Kentucky. The cost per day for all A/D waiver services averaged \$16.28 as opposed to \$41.96 per day for ICF and SNF care. The cost per day for all DD/CMI services averaged \$45.05 as opposed to \$93.84 per day for ICF-MR care. These cost data clearly indicate that waiver service expenditures are less than half of daily nursing home costs.

CLIENT TARGETING

States have considerable flexibility in defining eligibility for waivers. They can restrict waiver coverage to specific target groups, restrict geographic coverage to sub-state areas, include medically needy populations at their discretion, opt for extended eligibility provisions (expand income eligibility to 300 percent of the SSI cash standard, waive deeming of spouse and family income), set medical and physical functioning standards, set cost caps on waiver services, and use other screening criteria for program entry.

Exhibit 3-10 on the following page summarizes how States used this flexibility. In more than half of all waiver programs, States have elected to restrict statewideness; only four programs covered the chronically mentally ill; less than half extended eligibility to the medically needy; only 11 opted for the 300 percent of SSI expanded eligibility option; 44 programs used the waiver of income deeming rule; and 44 implemented a waiver service cost cap (see footnotes to Exhibit 3-10). Clearly, States developed eligibility rules for their waivers to suit their unique long-term care financing and delivery needs.

In addition to carefully structured eligibility criteria, all States require that waiver recipients be medically eligible for nursing home admission. Our survey found that nearly half of the States link A/D waiver eligibility to mandatory pre-admission screening programs for nursing home entry. However, most of the pre-admission screening programs focus on medical criteria and do not systematically and fully consider all viable alternatives to nursing home entry.

Pre-admission screening programs in Virginia, Minnesota, Washington and Oregon take into consideration not only the applicant's health and functional status, but also

Coverage Options Exercised by States

	Major Options Exercised				
	State-wide ^g	Deeming ^h	Cost Cap ^c	Medically Needy ^d	300 Percent ^e
<u>A/D Waiver Programs</u>					
Alabama	No	No	Yes	n.a.	No
California	Yes	No	Yes	No	n.a.
California	No	No	Yes	Yes	n.a.
Colorado	No	No	Yes	n.a.	Yes
Connecticut	No	Yes	Yes	Yes	n.a.
Florida	No	No	No	n.a.	No
Florida	Yes	Yes	Yes	n.a.	Yes
Georgia	Yes	Yes	Yes	No	n.a.
Hawaii	Yes	No	No	Yes	n.a.
Hawaii	Yes	No	No	Yes	n.a.
Idaho ^f	No	Yes	Yes	n.a.	Yes
Illinois	No	No	Yes	Yes	n.a.
Indiana	Yes	No	Yes	n.a.	No
Iowa ^g	Yes	No	No	n.a.	Yes
Kansas ^h	No	Yes	Yes	Yes	n.a.
Kentucky	Yes	No	Yes	Yes	n.a.
Louisiana	Yes	No	No	No	n.a.
Maine	No	Yes	Yes	Yes	n.a.
Massachusetts	Yes	No	No	Yes	n.a.
Massachusetts	No	Yes	No	Yes	n.a.
Minnesota	No	Yes	n.a.	Yes	n.a.
Missouri	No	No	No	n.a.	No
Missouri	No	No	Yes	n.a.	No
Montana ⁱ	Yes	Yes	Yes	Yes	n.a.
New Hampshire	Yes	Yes	Yes	No	n.a.
New Jersey	Yes	Yes	Yes	n.a.	Yes
New Mexico	Yes	Yes	Yes	n.a.	Yes
New York	Yes	Yes	Yes	Yes	n.a.
North Carolina	Yes	Yes	Yes	Yes	n.a.
North Dakota	Yes	Yes	No	Yes	n.a.
Ohio	Yes	No	Yes	n.a.	No
Oregon	n.a.	n.a.	n.a.	n.a.	n.a.
Rhode Island	Yes	Yes	No	No	n.a.
South Carolina	No	Yes	Yes	No	n.a.
Texas	Yes	No	Yes	No	n.a.
Utah ^j	Yes	No	No	No	n.a.
Virginia	Yes	Yes	Yes	Yes	n.a.
Washington	Yes	Yes	Yes	No	n.a.
West Virginia	Yes	Yes	Yes	No	n.a.
Wisconsin	Yes	Yes	Yes	Yes	n.a.

DD Waiver Programs

Alabama	No	No	No	n.a.	No
California	Yes	No	No	Yes	n.a.
Colorado	No	Yes	Yes	n.a.	Yes
Delaware	No	Yes	Yes	n.a.	Yes
Florida	No	No	No	n.a.	No
Hawaii	Yes	No	No	Yes	n.a.
Idaho ^f	No	Yes	Yes	n.a.	Yes
Illinois	No	No	Yes	Yes	n.a.
Iowa ^g	Yes	No	No	n.a.	Yes
Kansas ^h	n.a.	n.a.	n.a.	n.a.	n.a.
Kentucky	Yes	Yes	Yes	Yes	n.a.
Louisiana	No	No	Yes	No	n.a.

	Major Options Exercised				
	State-wide ^{a/}	Deeming ^{b/}	Cost Cap ^{c/}	Medically Needy ^{d/}	300 Percent ^{e/}
<u>DD Waiver Programs (continued)</u>					
Maine	No	Yes	Yes	No	n.a.
Maryland	No	Yes	No	Yes	n.a.
Massachusetts	No	No	Yes	Yes	n.a.
Minnesota	Yes	Yes	No	Yes	n.a.
Montana	Yes	Yes	No	Yes	n.a.
Nevada	No	No	No	n.a.	No
New Hampshire	Yes	Yes	No	No	n.a.
New Jersey	No	Yes	No	n.a.	Yes
New Mexico	Yes	Yes	Yes	n.a.	No
North Carolina	Yes	Yes	Yes	Yes	n.a.
North Dakota	Yes	Yes	No	Yes	n.a.
Oklahoma	No	Yes	Yes	Yes	n.a.
Oregon	n.a.	n.a.	n.a.	n.a.	n.a.
Pennsylvania	No	Yes	Yes	No	n.a.
Pennsylvania	Yes	Yes	Yes	No	n.a.
Pennsylvania	No	Yes	Yes	No	n.a.
Pennsylvania	Yes	Yes	Yes	No	n.a.
Rhode Island	No	Yes	Yes	No	n.a.
South Dakota	Yes	Yes	No	n.a.	Yes
Texas	Yes	No	Yes	No	n.a.
Vermont	Yes	Yes	No	No	n.a.
Washington	No	Yes	Yes	No	n.a.
West Virginia ^{f/}	No	Yes	Yes	No	n.a.
Wisconsin	Yes	Yes	No	Yes	n.a.
<u>CHI Waiver Programs</u>					
Colorado	No	No	n.a.	n.a.	Yes
Oregon	n.a.	n.a.	n.a.	n.a.	n.a.
Rhode Island	Yes	Yes	No	No	n.a.
Vermont	Yes	Yes	No	Yes	n.a.
TOTALS ^{b/}	43	47	46	30	13

SOURCE: La Jolla Waiver Survey (1985)

n.a. = Not Available

^{a/} "Yes" indicates that the State requests right to provide services of different type or intensity in different regions of the State.

^{b/} "Yes" indicates that the State requests right to exclude the income of parents for persons 18 years or younger or a spouse in determining eligibility for services.

^{c/} "Yes" indicates that the State requests right to deny home and community-based services if these would be more costly than institutional services.

^{d/} "Yes" indicates that the State plans to serve individuals qualifying as medically needy in addition to persons qualifying as categorically needy.

^{e/} "Yes" indicates that the State requests right to provide services to persons with an income of up to 300 percent of the Federal SSI payment standard.

^{f/} These are combined programs. [What is "combined"? A/D and DD or A/D and DD/CHI?]

^{g/} Although this is a combined program, respondent reported options only for the A/D portion.

^{h/} Totals for number of waiver programs do not match totals for columns answering "Yes" to coverage options because the 6 States with combined programs are counted twice in the program totals, but only once in the options columns.

the availability and strength of informal caregiver support, client lifestyle preferences, and fully explore all alternatives to nursing home entry. If the client's needs can be satisfied through formal and informal home or community services, Medicaid-funded nursing home entry is normally denied. This is the type of screening which enhances client targeting.

COST-EFFECTIVENESS

The waiver program has a clear potential to save money so long as the services are targeted to individuals who, but for the waiver, would enter a nursing home. However, a high level of accuracy in client targeting is difficult to achieve. Research and evaluation of federally-supported State home and community care demonstrations indicates that only 15-20 percent of people denied access to home and community care services actually wind up in nursing homes (see Chapter Two on evaluation issues).

The Congress intended the Section 2176 waiver program to pay for itself; savings from institutional costs avoided would at least offset the costs of the waiver services. Since the average cost of home and community-based care services is less than half that of nursing home costs, in theory, client targeting effectiveness (percent of people admitted to waiver program who are nursing home bound) can be as low as 50 percent in order for waiver programs to financially "break-even." This does not consider the possibility of increased spending for other Medicaid services for the at-home population nor the possible adverse impact on other Federal programs such as SSI and Medicare. It also assumes that the waiver services actually delay or prevent nursing home entry. Given this relatively narrow definition of "break-even", and since the average cost per day for A/D waiver services is approximately \$16.28 relative to an average nursing home cost of \$41.96 per day (1985 La Jolla survey). The break-even point for A/D waiver programs is around 40 percent. Due to the high cost variations among States, this breakeven figure will also vary (according to the 1985 survey data the breakeven point varied from 14 to 91 percent). Thus, all things being equal, if waiver services were a substitute for nursing home residency for only four out of ten recipients, the savings from reduced nursing home expenditures for the four would offset the cost of waiver services for all ten recipients.

The break-even point for DD/CMI waiver programs is slightly higher. The average cost per day for DD/CMI services is \$45.05 in contrast to an ICF-MR average cost of \$93.84. This requires a break-even point of almost 50 percent. In other words, half of the DD/CMI waiver population must have either entered the program from institutions or be institution-bound in order for the waiver to be near budget neutral to Medicaid. This average is subject to great variance among waiver States.

State-level case studies conducted as part of this evaluation (California and Georgia) indicate that States may have difficulty achieving the minimal required level of client targeting in order to break-even; i.e., be budget neutral to Medicaid. This finding is generally consistent with those of other evaluations of home and community care services (see Chapter Two).

QUALITY ASSURANCE

The survey asked States to describe the procedures which they have established to monitor the quality of care provided to waiver recipients. All States prepare plans of care for waiver recipients. Two-thirds of A/D programs (26 waivers) perform periodic review to determine if care plans continue to meet client needs, and if clients actually receive the services defined by the care plan. One-third of these programs (15 waivers) indicated that they independently (staff independent of the case managers or providers) assess the care provided and/or assess client outcomes. Over 90 percent of the DD/CMI recipients and 54 percent of the A/D recipients receive case management services.

In most DD/CMI waivers, multi-level quality assurance mechanisms have been developed to monitor care provided to clients. In two-thirds of the States (21 waivers), an independent review of services and care quality is conducted. Providers of care operating under contract with the State must meet all State licensure and certification standards. In virtually all programs, providers are monitored to ensure that care plans are properly implemented. Nearly all DD/CMI waiver programs compare actual client outcomes with the treatment objectives specified in the care plan to assess client progress toward developmental goals.

Quality of care is a high priority for most waiver programs. States are sensitive to the fact that waiver clients are vulnerable and need systematic attention. States report more intense monitoring of waiver clients than that typically provided for the Medicaid population at large. There are however, reports of high turnover rates among service provider personnel due to low wages (typically wages for personal care and homemaker services is not much above minimum area wages). High provider turnover is likely to lead to poor continuity of care and reduced client satisfaction.

STATE PERSPECTIVES ON ADMINISTRATION OF THE WAIVER PROGRAMS

The 1985 La Jolla Survey of Medicaid waiver programs asked states to respond to two open-ended questions designed to gauge their opinions of how well the Section 2176 waiver authority was being interpreted and administered by the Health Care Financing Administration. The questions were as follows: "What has been the most problematic aspect of waiver program implementation and operation?" and "How might the HCFA waiver formula, regulations and program administration be improved to permit your state to meet its waiver program objectives?"

State Operational Problems

The most frequently reported operational problem for the A/D waivers was the cost-sharing requirement which fell on some recipients. States felt that their clients were generally unwilling or unable to help pay for the cost of providing waiver services. Specifically, they advocated the elimination of the cost-sharing requirement that waiver applicants can keep an amount no greater than the SSI income level. They advocated that this income limitation was originally designed for persons about to live in a nursing home and is inappropriate for individuals who would remain in their homes.

Another problem expressed by several A/D administrators was the difficulty of coordinating administrative roles when authority for the waiver is split between one or more public agencies. These officials expressed concern that overlapping responsibilities can create problems with data collection, oversight, reporting, and the reconciliation of competing agency goals. A third area was the apparent difficulty in

gathering county level data for making statewide projections. Only a few States reported difficulty in finding home and community care services providers.

In contrast, several State DD/CMI waiver program managers reported their chief problem was a shortage of qualified and interested service providers. This slowed down expansion of the program.

Regulatory Problems

Over half of the States with either A/D or DD/CMI waivers stated that HCFA regulatory and reporting requirements posed significant obstacles to the success of their program. Complaints ranged from what was felt to be inordinate delays in obtaining approval of waiver amendments ("a minimum of six months") to the need to require simple and unambiguous statistical reports. HCFA was cited time and time again for excessive program and fiscal documentation, given the small size of the dollars involved. Further, States suggested a need to revise the waiver formula, eliminate the cap on program growth, and the desirability of making home and community care services optional under Medicaid State plans.

One-third of the States suggested that the waiver formula be revised. The most frequent assertion was that HCFA stop penalizing States which have worked successfully to contain excess nursing home bed growth. The existing regulation calls for evidence of the need for additional bed capacity in the absence of the waiver. States argue that this so-called "cold bed" policy be dropped. Another suggestion was that HCFA formula and reporting forms use "patient-years" instead of "unduplicated recipients" in the interest of obtaining the most accurate data on the average cost of waiver services. Use of a FTE-type calculation would eliminate needless arguments about whether a new recipient could be substituted for a terminated one.

Some of these State concerns about either the law or HCFA's regulations were addressed by the Consolidated Omnibus Reconciliation Act of 1985 which among other things (a) broadened the definition of habilitative services to include prevocational, educational and supported employment programs, (b) prohibits the Secretary HHS from requiring that the actual expenditures for home and community-based care under the waiver cannot exceed the estimates in the formula, (c) require automatic one-year

waiver extensions and a 5 year renewal period, and (d) States may add new people to the waiver program as others die or become ineligible for services.

ENDNOTES

1. For more detail, see Laudicina and Burwell, "A Profile of Medicaid Home and Community-Care Waivers, 1985: Findings of a National Survey," La Jolla Management Corporation, HCFA Contract No. 500-83-0056, September, 1986.

CHAPTER FOUR

WAIVER IMPACTS BASED ON STATE ANNUAL REPORTS TO HCFA

Section 2176 gives authority to the Secretary of HHS to require States to provide annual statistics on waiver programs as a condition of the waiver. The HCFA Form 372 was designed for this purpose. This chapter presents an analysis of these State reports to HCFA. The purpose of the analysis is to gain another perspective on State waiver programs and their impacts on people. Since these statistical reports are formally reviewed and accepted by HCFA, they can be considered the "official" perspective on waivers costs. Some caution is offered in considering findings from this analysis since not all waivers had approved reports at the time of this analysis and States have expressed difficulty in assembling reliable data.

METHODS AND DATA LIMITATIONS

This section provides a brief overview of the HCFA 372 form, describes our data analysis methods, and discusses some limitations of the data.

Form 372 Content

The HCFA 372 form is submitted to HCFA annually with the waiver year beginning at the effective start-up date of the waiver. This Form is the official documentation used to evaluate a waiver program's cost-effectiveness. The form is also a means by which States can give an accounting of their expenditures.

The form is divided into three sections. The first provides information on waiver clients who entered the waiver program from an institution, the second reports on the waiver clients who entered the program from the community, and the third provides data on non-waiver Medicaid clients who were institutionalized during all or a portion of the waiver year.

All three sections report the utilization and expenditures for a variety of traditional long-term and acute care Medicaid services. Sections one and two also

report waived service utilization and expenditures. In all three sections recipients are reported by their basis of Medicaid eligibility which is categorized as "Aged," "Disabled," and "Other."

HCFA Review Process

The HCFA review process includes checking for mathematical errors and comparing the 372 data to other comparable data sources such as the HCFA 371 form (projected waiver expenditures), the HCFA-2082 (annual statistical report on the entire Medicaid program) and HCFA-64 (quarterly claim for federal financial reimbursement) forms. Comparisons are made to check for inconsistencies in reporting. Questions raised by these checks are addressed to the States and States may subsequently be asked to revise the form.

After the numbers on the 372 form have been verified, program expenditures are compared to the waiver program's expenditure projections which were approved by HCFA during the application process. Programs which have not exceeded their projections are deemed satisfactory and their 372 form is approved.

Reports Used in This Analysis

The data used for this analysis include all the approved 372 forms as of April 17, 1986. Exhibit 4-1 displays (1) each of the programs used in the analysis, (2) the date when each program began providing services, and (3) the waiver year being reported. For a few programs the first year 372 form was not approved while the second year 372 form was. In these cases, the State had not yet corrected major reporting problems for the first waiver year but had submitted an approved report for the second year.

Analytic Methods

Recipient and expenditure data are reported for each waiver program. Many of the wide variations between programs are highlighted and discussed. Sums, averages, and percentages of the data are provided to describe and compare the waiver program types and the waiver program as a whole.

EXHIBIT 4-1

Waiver Programs, Effective Dates, and Approved
HCFA 372 Forms Used in the Analysis

Waiver Program Type	Effective Date	Approved 372 Forms	
		First Waiver Year	Second Waiver Year

Aged and Disabled			
COLORADO 0006	Jul-82		X
GEORGIA 0012	Oct-81	X	X
ILLINOIS 0015	Jul-83	X	X
KENTUCKY 0020	Jul-83	X	X
MINNESOTA 0025	Jul-82		X
MISSOURI 0026	Apr-82	X	X
NEW JERSEY 0032	Oct-83	X	
NEW YORK 0034	Jan-83	X	
NORTH CAROLINA 0035	Jul-82	X	X
NORTH DAKOTA 0054	Oct-83	X	X
RHODE ISLAND 0040	Jan-82	X	X
TEXAS 0045	Jan-83	X	X
VIRGINIA 0048	Jun-82	X	X

Mentally Retarded and Developmentally Disabled			
ALABAMA 0001	Oct-82	X	X
COLORADO 0007	Oct-82		X
DELAWARE 0009	Jul-83	X	X
KENTUCKY 0019	Apr-83	X	X
MAINE 0022	Jul-83	X	X
MARYLAND 0023	Feb-84	X	
NEVADA 0030	Jul-82	X	X
NEW HAMPSHIRE 0053	Sep-83	X	X
NEW JERSEY 0031	Oct-82	X	X
NORTH CAROLINA 0036	Jul-83	X	
NORTH DAKOTA 0037	Apr-83	X	X
PENNSYLVANIA 0039	Jul-83	X	X
PENNSYLVANIA 0058	Jul-83	X	X
SOUTH DAKOTA 0044	Jun-82	X	X
WISCONSIN 0052	Oct-83	X	

Combined Programs			
FLORIDA 010-011	Apr-82		X
KANSAS 0018	Mar-82	X	
MONTANA 0029	Jul-83	X	X
OREGON 0038	Jan-82		X
WASHINGTON 0049	Jan-83	X	X

Source: Bureau of Eligibility, Reimbursement and Coverage, HCFA

Potential cost-effectiveness is determined by comparing the Medicaid expenditures on waiver clients to those of non-waiver recipients of institutional services. To the extent that waiver clients are less expensive than non-waiver institutional clients the waiver program is cost-effective. However, there are several assumptions inherent within this definition of cost-effectiveness. First, this view of waiver program cost-effectiveness assumes that all waiver clients would have entered an institution "but for" the waiver program. Second, this view assumes that waiver clients would have entered an institution on the same day they began receiving waived services. Third, the assumption is made that there was an institutional bed left empty and unpaid for by Medicaid because an individual was diverted from that bed into the waiver program. The validity of these assumptions is examined when considering the waiver program's potential cost-effectiveness.

Data Limitations

This analysis is limited by the number of approved HCFA 372 forms available. This is due to the fact that as of our analysis date, May 1986, these were the only waiver reports approved by HCFA. The others either had not been submitted by States, were still in the HCFA approval process, or were reviewed and rejected.

Limitations also result from problems inherent within the 372 form. The validity of the data is brought into question because the 372 form does not necessarily capture all waiver expenditures. This is particularly evident with regard to case management which is often claimed by States as an administrative cost. Second, data reported in the first year 372 form reflect start-up lags. Consequently, the number of recipients and expenditures reported in the first year often do not reflect a 12 month period. This appears particularly evident when comparing first and second year reports.

A third validity problem arises from waiver programs using different definitions for the same waived service. Consequently, what was considered one type of waived service by one program may have been considered a different type of waived service by a different program. For example, "personal care" for one waiver program may have been "homemaker care" for another.

A fourth validity problem affects the analysis of potential cost-effectiveness. Annual expenditures reported for waiver recipients can not be separated into (1) expenditures while in the waiver program and (2) expenditures while not in the program. Likewise, the Medicaid expenditures reported for non-waivered institutional recipients can not be separated into expenditures while institutionalized and expenditures while not institutionalized. Consequently, a valid comparison of Medicaid expenditures on waiver clients while in the waiver program to the Medicaid expenditures for non-waivered recipients while institutionalized can not be done. Any comparison between waiver and nonwaiver Medicaid expenditures per recipient based on unduplicated recipient counts is unlikely to be valid since the measure "unduplicated recipients" does not ensure that the groups being compared are equivalent; i.e., valid comparisons can only be made using a fulltime equivalency concept such as total Medicaid costs per day of waiver or nonwaiver coverage.

Given these limitations, the HCFA 372 forms still represent an official accounting to HCFA of State waiver expenditures and program activities. In addition, approved reports used in this analysis have been subjected to a great deal of scrutiny by HCFA staff and are considered accurate representations of State waiver programs. The 372 reports are the only routine source of data on total Medicaid expenditures per day of coverage in the waiver program as compared with costs of care for institutionalized recipients.

MAJOR FINDINGS

Our findings from an analysis of the HCFA 372 data are organized below in terms of program size and penetration rates, utilization of waived services, expenditures, potential cost savings to Medicaid, and a reconsideration of the cost savings issue.

Recipient Characteristics

The 372 reports the number of waiver recipients served by basis of eligibility, origin prior to admission, and waiver year. These data, along with waiver program penetration rates are discussed below.

Exhibit 4-2 shows a wide variation among waiver programs regarding the number of waiver recipients, days of waived service, and days per recipient. Some of this variation in the first year can be attributed to start-up problems.

For programs reporting data in both years, the number of recipients generally grew between the two years. The aged and disabled (A/D) waiver programs generally had more recipients than the mentally retarded and developmentally disabled (MR/DD) waivers. Within the A/D waiver type, Illinois was by far the largest with 11,471 recipients in its second waiver year. Other A/D programs, such as North Carolina with 289 recipients, were relatively small.

The days per recipient also show a large variation with regard to length of stay in the waiver program. However, this wide range is again likely to be caused by start-up problems. Examination of the second waiver year shows less variation between programs, and a generally longer length of stay in the waiver program than the first.

There were a smaller number of waiver recipients entering the waiver program from institutions than from the community as seen in Exhibit 4-3. This is true even for the MR/DD programs where one might expect that a large percentage of the clients were deinstitutionalized from State mental institutions. Exhibit 4-3 shows that, as expected, the basis of Medicaid eligibility for the A/D programs was more likely to be "aged" while within the MR/DD program "disabled" was the most likely basis of eligibility.

Exhibit 4-4 shows that the waiver recipients generally made up a small percentage of the total estimated A/D institutionalized population in the first year of the waiver program. This penetration rate increased in the second year, although it was still small. The MR/DD waiver population had a larger penetration rate in both years than did the A/D programs. This is reasonable in light of the smaller total population of MR/DD institutionalized recipients.

Waiver Recipients and Days of Waiver Coverage by Type of Waiver Program, Year, and State

Waiver Type	First Waiver Year			Second Waiver Year			Both Waiver Years	
	Number of Recipients	Days	Days Per Recipient	Number of Recipients	Days	Days Per Recipient	Days	Days Per Recipient
Aged and Disabled								
COLORADO 0006	-	294,096	231	-	471,140	210	471,140	210
GEORGIA 0012	1,272	2,809,109	313	2,248	571,115	245	865,211	240
ILLINOIS 0015	8,968	10,387	74	2,332	2,127,305	185	4,936,414	242
KENTUCKY 0020	140	-	-	11,471	-	-	10,387	74
KENTUCKY 0025	-	27,096	166	1,004	214,890	214	214,890	210
MINNESOTA 0026	163	46,737	100	1,091	207,536	190	234,632	187
NEW JERSEY 0032	467	254,936	128	-	-	-	46,737	100
NEW YORK 0034	1,998	NA	NA	-	-	-	254,936	128
NORTH CAROLINA 0035	56	8,303	146	289	48,995	170	48,995	170
NORTH DAKOTA 0054	57	159,573	322	-	126,277	289	8,303	146
RHODE ISLAND 0040	495	1,167	83	437	-	-	285,850	307
TEXAS 0045	14	12,600	168	-	100,623	144	1,167	83
VIRGINIA 0048	75	-	-	701	-	-	113,223	146
Sub-Total	13,705	3,624,004	264	19,573	3,867,881	198	7,491,885	225
Mentally Retarded and Developmentally Disabled								
ALABAMA 0001	1,048	182,218	174	1,697	608,248	358	790,466	288
COLORADO 0007	43	5,194	121	1,113	306,596	275	306,596	275
DELAWARE 0009	327	65,563	200	-	-	-	5,194	121
KENTUCKY 0019	128	17,295	135	497	145,342	292	65,563	200
MAINE 0022	304	55,433	182	-	-	-	17,295	135
MARYLAND 0023	360	80,100	223	415	97,830	236	-	-
NEVADA 0030	326	99,451	305	-	-	-	177,930	230
NEW HAMPSHIRE 0053	578	195,419	338	1,245	399,915	321	99,451	305
NEW JERSEY 0031	56	12,399	221	-	-	-	595,334	327
NORTH CAROLINA 0036	266	81,654	307	-	-	-	12,399	221
NORTH DAKOTA 0037	82	4,824	59	-	-	-	81,654	307
PENNSYLVANIA 0039	59	7,506	127	-	-	-	4,824	59
PENNSYLVANIA 0058	382	116,725	306	457	145,657	319	7,506	127
SOUTH DAKOTA 0044	26	3,515	135	-	-	-	262,382	313
WISCONSIN 0052	-	-	-	-	-	-	3,515	135
Sub-Total	3,985	927,296	233	5,424	1,703,588	314	2,630,884	280
Combined Programs								
FLORIDA 010-011	-	257,031	-	8,478	1,832,312	216	1,832,312	216
KANSAS 0018	1,519	-	169	-	-	-	257,031	169
MONTANA 0029	-	-	-	341	70,045	205	70,045	205
OREGON 0038	-	-	-	8,929	2,357,305	264	2,357,305	264
WASHINGTON 0049	221	21,100	95	1,875	249,462	133	270,562	129
Sub-Total	1,740	278,131	160	19,623	4,509,124	230	4,787,255	224
TOTAL	19,430	4,829,431	249	44,620	10,080,593	226	14,910,024	233

Source: HCFA Expenditure and Utilization Data, Form 372

A dash (-) indicates the 372 form was not available.

"NA" = not available.

Waiver Recipients By Type of Program, Basis of Eligibility, Origin Prior to Admission, and Year

Waiver Program Type	First Waiver Year					Second Waiver Year				
	From Institutions Aged Disabled	From Institutions Other	From the Community Aged Disabled	From the Community Other	Unduplicated Recipients*	From Institutions Aged Disabled	From Institutions Other	From the Community Aged Disabled	From the Community Other	Unduplicated Recipients*
Aged and Disabled										
COLORADO 0006	-	-	-	-	1,272	100	28	1,608	402	2,248
GEORGIA 0012	5	2	782	5	8,968	4	6	1,436	878	2,332
ILLINOIS 0015	2,321	1,675	2,633	0	140	149	42	6,359	4,928	11,471
KENTUCKY 0020	3	3	57	4	-	74	3	742	113	1,004
MINNESOTA 0025	-	-	-	-	163	19	3	874	144	1,091
MISSOURI 0026	6	1	131	10	467	-	-	-	-	-
NEW JERSEY 0032	1	0	412	0	1,998	-	-	-	-	-
NEW YORK 0034	9	3	1,497	46	56	7	0	199	79	289
NORTH CAROLINA 0035	4	0	39	1	57	-	-	-	-	-
NORTH DAKOTA 0054	12	1	30	2	495	4	4	289	140	437
RHODE ISLAND 0040	1	0	330	0	14	-	-	-	-	-
TEXAS 0045	4	0	10	0	75	32	16	445	201	701
VIRGINIA 0048	0	0	42	0	-	-	-	-	-	-
Sub-Total	2,366	1,685	5,963	68	13,705	389	102	11,952	6,885	19,573
Mentally retarded and Developmentally Disabled										
ALABAMA 0001	0	7	5	7	1,048	0	11	4	1,666	1,697
COLORADO 0007	-	-	-	-	43	8	400	22	640	1,113
DELAWARE 0009	7	36	0	0	327	-	-	-	-	-
KENTUCKY 0019	0	18	0	0	128	0	18	0	478	497
MAINE 0022	0	14	2	0	304	-	-	-	-	-
MARYLAND 0023	6	297	0	0	360	0	34	0	333	415
NEVADA 0030	0	59	0	32	326	-	-	-	-	-
NEW HAMPSHIRE 0053	0	47	0	0	578	0	8	50	1,134	1,245
NEW JERSEY 0031	0	4	19	40	56	-	-	-	-	-
NORTH CAROLINA 0036	1	3	0	4	266	-	-	-	-	-
NORTH DAKOTA 0037	0	5	2	16	82	-	-	-	-	-
PENNSYLVANIA 0039	0	72	0	0	59	-	-	-	-	-
PENNSYLVANIA 0058	0	51	0	0	382	0	65	0	392	457
SOUTH DAKOTA 0044	0	130	0	0	26	-	-	-	-	-
WISCONSIN 0052	0	26	0	0	-	-	-	-	-	-
Sub-Total	14	769	28	99	3,985	8	536	76	4,643	5,424
Combined Programs										
FLORIDA 010-011	-	-	-	-	1,519	45	95	2,370	5,910	8,478
KANSAS 0018	484	94	752	250	-	12	60	156	113	341
MONTANA 0029	-	-	-	-	-	602	349	3,926	4,030	8,929
OREGON 0038	-	-	-	-	221	62	13	1,353	459	1,875
WASHINGTON 0049	0	0	159	0	-	721	517	7,805	10,512	19,623
Sub-Total	484	94	911	250	1,740	1,118	1,155	19,833	22,040	44,620
TOTAL	2,864	2,548	6,902	417	19,430	8	536	19,833	22,040	44,620

Source: HCFA Expenditure and Utilization Data, Form 372
 *Waiver recipients added across do not equal the total unduplicated because some recipients were reported in more than one eligibility category.

EXHIBIT 4-4
Waiver Program Penetration Rates By Type of Waiver Program, State, for Waiver Year 2

Waiver Programs	Waiver Recip.		Non-Waiver Instit. Recip.		Total (Waiver + Inst.)
	N	% of Total	N	% of Total	
Aged and Disabled					
COLORADO 0006	2,248	14.1%	13,641	85.9%	15,889
GEORGIA 0012	2,332	6.5%	33,550	93.5%	35,882
ILLINOIS 0015	11,471	15.6%	62,270	84.4%	73,741
KENTUCKY 0020	-	-	-	-	-
MINNESOTA 0025	1,004	2.6%	37,304	97.4%	38,308
MISSOURI 0026	1,091	4.5%	23,283	95.5%	24,374
NEW JERSEY 0032	-	-	-	-	-
NEW YORK 0034	-	-	-	-	-
NORTH CAROLINA 0035	289	1.3%	22,444	98.7%	22,733
NORTH DAKOTA 0054	-	-	-	-	-
RHODE ISLAND 0040	437	4.6%	9,160	95.4%	9,597
TEXAS 0045	-	-	-	-	-
VIRGINIA 0048	701	3.5%	19,153	96.5%	19,854
Sub-Total	19,573	8.1%	220,805	91.9%	240,378
Mentally Retarded and Developmentally Disabled					
ALABAMA 0001	1,697	54.1%	1,438	45.9%	3,135
COLORADO 0007	1,113	36.6%	1,925	63.4%	3,038
DELAWARE 0009	-	-	-	-	-
KENTUCKY 0019	497	28.7%	1,236	71.3%	1,733
MAINE 0022	-	-	-	-	-
MARYLAND 0023	-	-	-	-	-
NEVADA 0030	415	69.5%	182	30.5%	597
NEW HAMPSHIRE 0053	-	-	-	-	-
NEW JERSEY 0031	1,245	22.8%	4,225	77.2%	5,470
NORTH CAROLINA 0036	-	-	-	-	-
NORTH DAKOTA 0037	-	-	-	-	-
PENNSYLVANIA 0039	-	-	-	-	-
PENNSYLVANIA 0058	-	-	-	-	-
SOUTH DAKOTA 0044	457	39.9%	689	60.1%	1,146
WISCONSIN 0052	-	-	-	-	-
Sub-Total	5,424	35.9%	9,695	64.1%	15,119
Combined Programs					
FLORIDA 010-011	8,478	18.7%	36,772	81.3%	45,250
KANSAS 0018	-	-	-	-	-
MONTANA 0029	341	6.6%	4,858	93.4%	5,199
OREGON 0038	8,929	42.9%	11,893	57.1%	20,822
WASHINGTON 0049	1,875	8.1%	21,370	91.9%	23,245
Sub-Total	19,623	20.8%	74,893	79.2%	94,516
TOTAL	44,620	12.7%	305,393	87.3%	350,013

Source: HCFA Expenditure and Utilization Data, Form 372

A dash (-) indicates the 372 form was not available. "NA" = not available.

Service Use, By Target Group and State

Exhibit 4-5 presents data on waiver recipient use of services during the first and second waiver years. The A/D population made heavy use of case management (63 percent of all A/D recipients) followed by personal care (51 percent) and homemaker services (31 percent). In contrast, home health aide, adult day health, and respite care services were hardly used at all. Habilitation services are generally not appropriate for this population. "Other" services included non-medical transportation, therapy and counseling. Individuals entering the program having prior institutional care tended to be heavier users of waived services.

The MR/DD population made the greatest use of habilitation (70 percent), case management (60 percent), and personal care (26 percent). It is not clear why only 70 percent of MR/DD clients received habilitation services since such services are vital to this population. Respite care was received by 7 percent of this population while homemaker and home health aide service were insignificant.

Exhibit 4-6 provides a focus-in on the use of case management services. In the second waiver year, A/D waivers varied widely in their use of case management as a waived service. Some States like Colorado, Illinois, Minnesota and North Carolina offered case management to 80-95 percent of their A/D recipients. Other States did not provide case management services at all. One explanation for the apparent lack of consensus on the value of case management might be that some States fund case management out of administrative funds where the potential for federal match is greater when physicians or skilled nursing staff are involved.

Expenditures, By Target Group and State

Although total expenditures for all States has no meaning since all waiver States are not represented in the data base, expenditure growth rates and expenditures per waiver month of coverage are significant statistics. Exhibit 4-7 shows these data by waiver for the first, second and both years. Most expenditures (60 percent) went for

EXHIBIT 4-5

Recipient Use of Waivered Services by Type of Waiver, Origin Prior to Admission, and State, for Waiver Year 2

Waiver Program Type	Waiver Recipients From Institutions		Waiver Recipients From Community		Total Waiver Recips.	
	# Provided Service	Percent*	# Provided Service	Percent**	# Provided Service	Percent of all Recips.
Aged and Disabled						
Case Management	353	70.9%	11,916	62.5%	12,269	62.7%
Homemaker	213	42.8%	5,813	30.5%	6,026	30.8%
Home Health Aid	46	9.2%	1,103	5.8%	1,149	5.9%
Personal Care	215	43.2%	9,795	51.3%	10,010	51.1%
Adult Day Health	27	5.4%	1,326	7.0%	1,353	6.9%
Habilitation	1	0.0%	0	0.0%	1	0.0%
Respite Care	3	0.6%	124	0.7%	127	0.6%
Other	96	19.3%	2,863	15.0%	2,959	15.1%
Mentally Retarded and Developmentally Disabled						
Case Management	492	86.6%	2,777	57.2%	3,269	60.3%
Homemaker	2	0.4%	75	1.5%	77	1.4%
Home Health Aid	0	0.0%	0	0.0%	0	0.0%
Personal Care	32	5.6%	1,372	28.3%	1,404	25.9%
Adult Day Health	145	25.5%	557	11.5%	702	12.9%
Habilitation	129	22.7%	3,666	75.5%	3,795	70.0%
Respite Care	10	1.8%	381	7.8%	391	7.2%
Other	17	3.0%	341	7.0%	358	6.6%
Combined						
Case Management	84	6.8%	1,576	8.6%	1,660	8.5%
Homemaker	364	29.4%	5,784	31.4%	6,148	31.3%
Home Health Aid	0	0.0%	0	0.0%	0	0.0%
Personal Care	95	7.7%	2,285	12.4%	2,380	12.1%
Adult Day Health	36	2.9%	88	0.5%	49	0.2%
Habilitation	58	4.7%	23	0.1%	81	0.4%
Respite Care	6	0.5%	201	1.1%	207	1.1%
Other	855	69.0%	12,587	68.5%	13,442	68.5%

Source: HCFA Expenditure and Utilization Data, Form 372

*Percent of all waiver recipients from institutions.

**Percent of all waiver recipients from the community.

A total and sub-total for the waived services are not provided because there was duplication of recipients across waived services.

A dash (-) indicates the 372 form was not available.

"NA" = not available.

EXHIBIT 4-6

Waiver Recipient Use of Case Management Services by Type of Waiver,
Origin Prior to Admission, and State, for Waiver Year 2

Type	Recips. From Institutions		Recips. From Community		Total	
	# Provided C.M.	Percent*	# Provided C.M.	Percent**	# Provided C.M.	Percent of All Recips.
Aged and Disabled						
COLORADO 0006	128	97.0%	2,022	95.6%	2,150	95.6%
GEORGIA 0012	SNO	SNO	SNO	SNO	SNO	SNO
ILLINOIS 0015	154	80.6%	8,899	78.9%	9,053	78.9%
KENTUCKY 0020	-	-	-	-	-	-
MINNESOTA 0025	65	82.3%	742	80.2%	807	80.4%
MISSOURI 0026	0	0.0%	0	0.0%	0	0.0%
NEW JERSEY 0032	-	-	-	-	-	-
NEW YORK 0034	-	-	-	-	-	-
NORTH CAROLINA 0035	6	85.7%	253	89.7%	259	89.6%
NORTH DAKOTA 0054	-	-	-	-	-	-
RHODE ISLAND 0040	0	0.0%	0	0.0%	0	0.0%
TEXAS 0045	-	-	-	-	-	-
VIRGINIA 0048	SNO	SNO	SNO	SNO	SNO	SNO
Sub-Total	353	70.9%	11,916	62.5%	12,269	62.7%
Mentally Retarded and Developmentally Disabled						
ALABAMA 0001	SNO	SNO	SNO	SNO	SNO	SNO
COLORADO 0007	429	100.0%	684	100.0%	1,113	100.0%
DELAWARE 0009	-	-	-	-	-	-
KENTUCKY 0019	18	100.0%	479	100.0%	497	100.0%
MAINE 0022	-	-	-	-	-	-
MARYLAND 0023	-	-	-	-	-	-
NEVADA 0030	36	100.0%	378	99.7%	414	99.8%
NEW HAMPSHIRE 0053	-	-	-	-	-	-
NEW JERSEY 0031	9	100.0%	1,236	100.0%	1,245	100.0%
NORTH CAROLINA 0036	-	-	-	-	-	-
NORTH DAKOTA 0037	-	-	-	-	-	-
PENNSYLVANIA 0039	-	-	-	-	-	-
PENNSYLVANIA 0058	-	-	-	-	-	-
SOUTH DAKOTA 0044	0	0.0%	0	0.0%	0	0.0%
WISCONSIN 0052	-	-	-	-	-	-
Sub-Total	492	86.6%	2,777	57.2%	3,269	60.3%
Combined Programs						
FLORIDA 010-011	12	8.6%	1,307	15.7%	1,319	15.6%
KANSAS 0018	-	-	-	-	-	-
MONTANA 0029	72	100.0%	269	100.0%	341	100.0%
OREGON 0038	0	0.0%	0	0.0%	0	0.0%
WASHINGTON 0049	SNO	SNO	SNO	SNO	SNO	SNO
Sub-Total	84	6.8%	1,576	8.6%	1,660	8.5%
TOTAL	929	40.3%	16,269	38.4%	17,198	38.5%

Source: HCFA Expenditure and Utilization Data, Form 372

*Percent of the state's waiver recipients from institutions.

**Percent of the State's waiver recipients from the community.

A dash (-) indicates the 372 form was not available.

"SNO"--service not offered, the state did not include the service in its waiver application.

EXHIBIT 4-7
Waiver Expenditures By Waiver Type and State for Waiver Year 2

Waiver Program Type	Total Waiver Expenditures	Expenditures Per Recip.	Expenditures Per Waiver Month
Aged and Disabled			
COLORADO 0006	\$3,455,766	\$1,537	\$223
GEORGIA 0012	\$3,864,905	\$1,657	\$206
ILLINOIS 0015	\$19,251,720	\$1,678	\$275
KENTUCKY 0020	-	-	-
MINNESOTA 0025	\$1,597,639	\$1,591	\$226
MISSOURI 0026	\$557,921	\$511	\$82
NEW JERSEY 0032	-	-	-
NEW YORK 0034	-	-	-
NORTH CAROLINA 0035	\$516,927	\$1,789	\$321
NORTH DAKOTA 0054	-	-	-
RHODE ISLAND 0040	\$951,900	\$2,178	\$229
TEXAS 0045	-	-	-
VIRGINIA 0048	\$1,378,610	\$1,967	\$417
Sub-Total	\$31,575,388	\$1,613	\$248
Mentally Retarded and Developmentally Disabled			
ALABAMA 0001	\$6,596,109	\$3,887	\$330
COLORADO 0007	\$13,355,114	\$11,999	\$1,325
DELAWARE 0009	-	-	-
KENTUCKY 0019	\$7,619,986	\$15,332	\$1,595
MAINE 0022	-	-	-
MARYLAND 0023	-	-	-
NEVADA 0030	\$1,492,288	\$3,596	\$464
NEW HAMPSHIRE 0053	-	-	-
NEW JERSEY 0031	\$12,780,857	\$10,266	\$972
NORTH CAROLINA 0036	-	-	-
NORTH DAKOTA 0037	-	-	-
PENNSYLVANIA 0039	-	-	-
PENNSYLVANIA 0058	-	-	-
SOUTH DAKOTA 0044	\$3,406,488	\$7,454	\$711
WISCONSIN 0052	-	-	-
Sub-Total	\$45,250,842	\$8,343	\$808
Combined Programs			
FLORIDA 010-011	\$17,146,587	\$2,022	\$285
KANSAS 0018	-	-	-
MONTANA 0029	\$2,223,643	\$6,521	\$960
OREGON 0038	\$14,097,623	\$1,579	\$182
WASHINGTON 0049	\$4,659,863	\$2,485	\$568
Sub-Total	\$38,127,716	\$1,943	\$260
TOTAL	\$114,953,946	\$2,576	\$348

Source: HCFA Expenditure and Utilization Data, Form 372
A dash (-) indicates the 372 form was not available.

"NA" = Not available.

MR/DD services. The most important data is the second year of waiver operation since the first year is distorted by start-up delays and costs. In the second year, A/D waiver expenditures ranged from a high in Illinois of \$19 million to a low of \$517,000 in North Carolina. Expenditures per A/D recipients averaged \$1,613 per year. However, the expenditure per recipient measure is not a particularly good one for comparison purposes since waiver programs vary in terms of recipient length of stay. That is, some waivers may have high numbers of recipients who stay in the program for relatively short periods of time, which will result in low expenditures per recipient. A better measure is expenditure per recipient month of waived coverage. Using this measure, States again varied widely in terms of program generosity. Virginia spent \$417 per waiver month for A/D recipients whereas Minnesota spent only \$82 per coverage month; the average among reporting States for A/D is \$248.

Expenditures for MR/DD recipients per month are considerably higher. On a per waiver month basis expenditures ranged from a low of \$330 in Alabama to \$1,595 in Kentucky; the average for all reporting States is \$808 per waiver month of service coverage. On a per recipient basis, the MR/DD expenditures per year is \$8,343. This sounds expensive unless it is compared with a year of ICF-MR or State institutional costs per year of \$25,000 or greater.

For the A/D population 52 percent of all waiver expenditures went for personal care services. Homemaker services (25 percent) was the next spending priority. Case management accounted for only 6 percent of A/D expenditures. Exhibit 4-8 on the following page provides expenditure distributions by service type for both target populations. Habilitation services accounted for close to 40 percent of MR/DD expenditures while "other" services accounted for a third of total MR/DD expenditures for the States reporting in the second waiver year.

Clearly, the HCFA 372 data show that waiver services have great potential for saving money for State and federal Medicaid budgets. However, the question of waiver cost-effectiveness is considerably more complicated than a simple comparison of waiver costs to institutional cost. The next sections of this chapter deal with this more complex issue.

EXHIBIT 4-8

Expenditures for Waivered Services By Waiver Type and State for Waiver Year 2

Waiver Program Type	Service Expenditures	Expenditure* Per Recipient	Percent of Total Waiver Expenditures
Aged and Disabled	(In Dollars)	(In Dollars)	
Case Management	\$1,803,220	\$147	5.7%
Homemaker	\$7,807,798	\$1,307	24.7%
Home Health Aid	\$1,241,945	\$1,081	3.9%
Personal Care	\$16,464,161	\$1,646	52.1%
Adult Day Health	\$2,116,571	\$1,564	6.7%
Habilitation	\$1,181	\$1,181	0.0%
Respite Care	\$72,387	\$570	0.2%
Other Approved Services*	\$2,068,125	\$612	6.5%
Sub-Total	\$31,575,388	\$1,613	99.8%
Mentally Retarded and Developmentally Disabled			
Case Management	\$2,810,920	\$860	6.2%
Homemaker	\$216,823	\$2,816	0.5%
Home Health Aid	\$0	\$0	0.0%
Personal Care	\$7,838,960	\$5,583	17.3%
Adult Day Health	\$3,212,700	\$4,576	7.1%
Habilitation	\$16,440,826	\$4,331	36.3%
Respite Care	\$346,434	\$886	0.8%
Other Approved Services	\$14,385,239	\$6,837	31.8%
Sub-Total	\$45,251,902	\$8,343	100.0%
Combined Programs			
Case Management	\$511,711	\$308	1.3%
Homemaker	\$5,102,184	\$830	13.4%
Home Health Aid	\$0	\$0	0.0%
Personal Care	\$5,009,231	\$2,105	13.1%
Adult Day Health	\$352,668	\$2,844	0.9%
Habilitation	\$1,096,980	\$13,543	2.9%
Respite Care	\$174,398	\$843	0.5%
Other Approved Services	\$25,880,544	\$1,925	67.9%
Sub-Total	\$38,127,716	\$1,943	100.0%
TOTAL	\$76,827,290	\$2,454	99.9%

Source: HCFA Expenditure and Utilization Data, Form 372

*Waivered service expenditures per recipient receiving the particular waived service.

Percents do not always add to 100 because of rounding errors or differences between the reported expenditures for services and the reported total expenditures.

A dash (-) indicates the 372 form was not available.

COST-EFFECTIVENESS

Three perspectives are used to examine potential waiver cost-effectiveness. The first compares waiver expenditures on waiver clients to institutional expenditures on non-waiver institutional clients. The second compares total Medicaid expenditures on waiver clients to total Medicaid expenditures on non-waiver institutional clients. The third perspective examines cost savings after re-considering the underlying assumptions of the first two perspectives.

Comparison of Waiver and Non-Waiver Institutional Expenditures

Exhibit 4-9 shows that Medicaid expenditures for second year A/D waived services were \$694 less per recipient month than were expenditures per month of institutionalization for non-waiver recipients. The MR/DD programs appear to have a larger potential cost savings (\$1,236) per recipient month than did the A/D programs. These findings suggest that the potential cost-effectiveness of the waiver program is high. However, they are based on a very small number of observations. In addition, other Medicaid expenditures of the two groups is not taken into consideration.

Comparison of Total Medicaid Expenditures For Waiver and Non-Waivered Institutionalized Recipients

The 372 data displayed in Exhibit 4-10 suggest that, for the A/D group, the total Medicaid expenditures for waiver recipients averaged \$4,519 whereas expenditures for the non-waivered institutional group averaged \$9,345 per recipient. Potential cost savings was much higher for MR/DD clients than A/D clients. Although the analysis is based on a very limited number of observations, the potential MR/DD savings to Medicaid per annum is \$10,247.

Potential savings are, however, based on a series of assumptions which may not be true. A more sophisticated consideration of potential savings or cost-effectiveness of the waiver programs needs to take these assumptions into account.

EXHIBIT 4-9

A Comparison of the Medicaid Expenditures for Waiver Services to Medicaid Expenditures for Institutional Care of the Non-Waiver Institutional Recipients*

Waiver Program Type	Medicaid Expenditures**		Expenditure Per Recipient Month		Difference
	Waiver	Non-Waiver Institutional	Waiver Recip.	Non-Waivered Institutional	
Aged and Disabled					
COLORADO 0006	\$3,455,766	\$97,662,269	\$223	\$1,078	\$854
GEORGIA 0012	\$3,864,905	NA	\$206	NA	NA
ILLINOIS 0015	\$19,251,720	\$427,846,182	\$275	\$739	\$463
KENTUCKY 0020	-	-	-	-	-
MINNESOTA 0025	\$1,597,639	\$418,217,025	\$226	\$1,200	\$974
MISSOURI 0026	\$557,921	\$174,062,211	\$82	\$861	\$779
NEW JERSEY 0032	-	-	-	-	-
NEW YORK 0034	-	-	-	-	-
NORTH CAROLINA 0035	\$516,927	\$199,830,174	\$321	\$1,065	\$744
NORTH DAKOTA 0054	-	-	-	-	-
RHODE ISLAND 0040	\$951,900	\$79,949,285	\$229	\$1,034	\$804
TEXAS 0045	-	-	-	-	-
VIRGINIA 0048	\$1,378,610	\$170,655,272	\$417	\$956	\$539
Sub-Total	\$31,575,388	\$1,568,222,418	\$248	\$942	\$694
Mentally Retarded and Developmentally Disabled					
ALABAMA 0001	\$6,596,109	\$49,294,311	\$330	\$3,029	\$2,699
COLORADO 0007	\$13,355,114	\$130,566,363	\$1,325	\$1,297	(\$28)
DELAWARE 0009	-	-	-	-	-
KENTUCKY 0019	\$7,619,986	\$37,876,376	\$1,595	\$2,708	\$1,113
MAINE 0022	-	-	-	-	-
MARYLAND 0023	-	-	-	-	-
NEVADA 0030	\$1,492,288	\$30,168,083	\$464	\$1,395	\$931
NEW HAMPSHIRE 0053	-	-	-	-	-
NEW JERSEY 0031	\$12,780,857	\$159,351,658	\$972	\$3,455	\$2,483
NORTH CAROLINA 0036	-	-	-	-	-
NORTH DAKOTA 0037	-	-	-	-	-
PENNSYLVANIA 0039	-	-	-	-	-
PENNSYLVANIA 0058	-	-	-	-	-
SOUTH DAKOTA 0044	\$3,406,488	\$15,241,846	\$711	\$1,900	\$1,189
WISCONSIN 0052	-	-	-	-	-
Sub-Total	\$45,250,842	\$422,498,637	\$808	\$2,044	\$1,236
Combined Programs					
FLORIDA 010-011	\$17,146,587	\$324,000,120	\$285	\$937	\$652
KANSAS 0018	-	-	-	-	-
MONTANA 0029	\$2,223,643	\$49,931,016	\$960	\$1,113	\$153
OREGON 0038	\$14,097,623	\$128,474,468	\$182	\$1,201	\$1,020
WASHINGTON 0049	\$4,659,863	\$154,172,952	\$568	NA	NA
Sub-Total	\$38,127,716	\$656,578,556	\$257	\$1,010	\$753
TOTAL	\$114,953,946	\$2,647,299,611	\$345	\$1,053	\$707

Source: HCFA Expenditure and Utilization Data, Form 372.

*Non-Waiver institutional recipients include all persons receiving at least one day of Medicaid supported institutional care during the waiver year who did not receive any waived services during that year.

**Medicaid expenditures are reported for the waived services spent on waiver clients and the institutional services spent on the non-waiver institutional recipients during the waiver year.

A dash (-) indicates the 372 form was not available.

"NA" = not available.

EXHIBIT 4-10

A Comparison of Total Medicaid Expenditures On Waiver Recipients to Total Medicaid Expenditures on Non-Waiver Institutional Recipients for Waiver Year 2

Waiver Program Type	Total Medicaid Expenditures**		Expenditure Per Recipient		Diff.
	Waivered	Non-Waivered Institutional	Waiver Recip.	Non-Waivered Institutional	
Aged and Disabled					
COLORADO 0006	\$9,681,212	\$114,038,473	\$7,434	\$14,965	\$7,532
GEORGIA 0012	\$10,165,742	\$267,824,222	\$6,439	\$10,294	\$3,854
ILLINOIS 0015	\$54,639,059	\$509,526,846	\$9,292	\$10,463	\$1,171
KENTUCKY 0020	-	-	-	-	-
MINNESOTA 0025	\$5,327,305	\$482,536,811	\$8,968	\$16,463	\$7,494
MISSOURI 0026	\$2,014,518	\$186,149,940	\$3,512	\$10,953	\$7,441
NEW JERSEY 0032	-	-	-	-	-
NEW YORK 0034	-	-	-	-	-
NORTH CAROLINA 0035	\$1,809,802	\$228,545,894	\$13,363	\$14,492	\$1,129
NORTH DAKOTA 0054	-	-	-	-	-
RHODE ISLAND 0040	\$2,180,487	\$84,167,465	\$6,247	\$12,941	\$6,695
TEXAS 0045	-	-	-	-	-
VIRGINIA 0048	\$2,630,320	\$190,529,814	\$9,457	\$12,696	\$3,239
Sub-Total	\$88,448,445	\$2,063,319,465	\$8,273	\$12,435	\$4,163
Mentally Retarded and Developmentally Disabled					
ALABAMA 0001	\$7,265,282	\$49,574,221	\$4,321	\$36,226	\$31,905
COLORADO 0007	\$15,540,600	\$142,292,466	\$18,337	\$16,808	(\$1,529)
DELAWARE 0009	-	-	-	-	-
KENTUCKY 0019	\$8,594,273	\$38,435,016	\$21,391	\$32,681	\$11,290
MAINE 0022	-	-	-	-	-
MARYLAND 0023	-	-	-	-	-
NEVADA 0030	\$2,940,064	\$33,366,831	\$10,872	\$18,346	\$7,474
NEW HAMPSHIRE 0053	-	-	-	-	-
NEW JERSEY 0031	\$13,563,447	\$163,042,808	\$12,269	\$42,043	\$29,773
NORTH CAROLINA 0036	-	-	-	-	-
NORTH DAKOTA 0037	-	-	-	-	-
PENNSYLVANIA 0039	-	-	-	-	-
PENNSYLVANIA 0058	-	-	-	-	-
SOUTH DAKOTA 0044	\$4,022,632	\$15,695,059	\$9,991	\$23,271	\$13,280
WISCONSIN 0052	-	-	-	-	-
Sub-Total	\$51,926,298	\$442,406,401	\$11,027	\$25,453	\$14,426
Combined Programs					
FLORIDA 010-011	\$30,718,453	\$355,500,588	\$6,065	\$12,227	\$6,162
KANSAS 0018	-	-	-	-	-
MONTANA 0029	\$3,206,817	\$55,952,554	\$16,466	\$14,834	(\$1,632)
OREGON 0038	\$50,044,955	\$138,927,878	\$7,680	\$15,453	\$7,772
WASHINGTON 0049	\$9,493,009	\$178,285,004	\$13,766	NA	-
Sub-Total	\$93,463,234	\$728,666,024	\$7,617	\$19,142	\$11,525
TOTAL	\$233,837,977	\$3,234,391,890	\$8,450	\$14,611	\$6,160

Source: HCFA Expenditure and Utilization Data, Form 372.

*Non-Waiver institutional recipients include all persons receiving at least one day of Medicaid supported institutional care during the waiver year who did not receive any waived services during that year.

**Total medicaid expenditures are reported for the waiver recipients and the non-waiver institutional recipients during the waiver year.

A dash (-) indicates the 372 form was not available.

"NA" = not available.

Potential Cost-Effectiveness Reconsidered

The above perspectives assume that Medicaid expenditures for institutional care would have begun on the day that Medicaid began paying for waived services. If this assumption is true, institutional expenditures are substituted for waiver services on a one for one basis. However, if a nursing home waiting list existed, some waiver recipients would have been placed on the list and admission to the home delayed. Consequently, it is likely that for some waiver recipients Medicaid paid for a few days or weeks of waived services which did not replace days in an institution on a one for one basis. This less than a one for one substitution rate will reduce the cost-effectiveness of a waiver program.

The cost-effectiveness analyses above further assumed that each waiver client would have entered an institution "but for" the waiver program, i.e. client targeting efficiency was 100 percent. However, HCFA demonstration projects have shown that targeting the appropriate population, i.e. those who would have entered an institution "but for" waived services, has been poor. Client targeting problems were also found in the La Jolla waiver case studies in California and Georgia reported in a subsequent chapter of this report. For each waiver recipient not appropriately targeted, Medicaid incurs the added cost of waived services and has no institutional savings as an offset. If this occurs with sufficient frequency, the budget neutrality assumption in the waiver program will be compromised.

It is useful to consider the implications of less than 100 percent targeting effectiveness on waiver cost-effectiveness. Given the limited data in Exhibit 4-10 the average total Medicaid expenditure per A/D recipient is \$4,519 whereas for the A/D non-waivered institutional group expenditures were reported to be \$9,345, a difference of \$4,826. If these averages applied to a given waiver the targeting "break-even" point would be 48 percent; i.e., out of every 100 A/D recipients only 48 would have to otherwise be living in a nursing home "but for" the waiver services in order for the waiver to be financially neutral to Medicaid. Put another way, 52 out of 100 recipients could receive waiver services in error; i.e., these people would not have lived in a nursing home without waiver services.

By chance, the same break-even point holds for the MR/DD caseload. That is, average total Medicaid expenditures per MR/DD waiver service recipient was reported to be \$9,573 whereas the cost averaged \$19,820. This means that in order for the average MR/DD waiver to be budget neutral to Medicaid about one in every two recipients would have to otherwise reside incur ICF-MR costs. The point of the breakeven analysis is that there is room in the programs for mistakes in client targeting while still meeting the Medicaid budget neutrality criterion. These breakeven ratios should not be regarded as necessarily accurate given the small number of waiver reports being analyzed and the previously discussed limitations in the data.

Our conclusion is that as long as one assumes that waiver services are targeted well enough to meet breakeven points and that waiver services are effective substitutes for institutional care, the approved 372 reports make a case that the waivers are at least budget neutral. Since there is substantial evidence from this and other evaluations that these assumptions are probably unrealistic, we conclude that analysis of the 372 reports is of very limited value.

CHAPTER FIVE

WAIVER IMPACT ON MEDICAID NURSING HOME USE AND EXPENDITURES¹

One of the major evaluation issues is the extent to which the waivers serve to help reduce Medicaid nursing home use and expenditures. In order to achieve the Congressionally mandated budget neutrality, institutional care savings must at least offset the cost of the waiver programs. One perspective on this issue is to compare State nursing home use and expenditures before and after implementation of their waivers, and then to compare any differences with non-waiver State trends. Since the A/D and DD/CMI populations and waiver programs are so different, we have conducted separate studies of this issue for each of the two groups. The trends and ratios that are used in these analyses come from aggregate utilization and expenditure data submitted to HCFA annually by the States. For reasons explained below, the A/D waiver analysis is descriptive while the DD/MR analysis presents and tests hypotheses.

IMPACT OF THE A/D WAIVERS ON NURSING HOME USE AND EXPENDITURES

There are several factors which may prevent the detection of A/D waiver program effects at the national and state levels. Nursing home bed supply shortages and the resulting nursing home waiting lists can prevent the waiver program from leaving nursing home beds empty. Nursing home use and expenditures are not reduced if the nursing home bed left empty by the waiver client is immediately filled by a Medicaid A/D recipient on a nursing home waiting list.

Another factor that may mask the waiver program's effect is the relatively small number of A/D waiver recipients in proportion to the total Medicaid A/D population. A/D waiver recipients make up only 3 percent of the total Medicaid A/D population (La Jolla 1985 Survey, HCFA 2082). This is less of a problem in the DD/CMI analysis where DD/CMI waiver recipients make up 23 percent of the total DD/CMI Medicaid population.

A third reason that it is difficult to find waiver effects in aggregated data is that many other factors have had effects on nursing home supply and demand at the same time as the waivers were granted. One is the new Medicare Prospective Payment System. The shorter length of hospital stays induced by this hospital method may have also caused increased demand for nursing home beds. A possible offsetting demand factor is the implementation of Medicaid mandatory pre-admission programs for nursing homes. Many States have also implemented stringent new certificate of need laws limiting building of new nursing home beds. These and other factors influencing the health care system confound our ability to detect the unique effect of any change. The net effect of these pressures may well mask any favorable effects of the waivers on reduced nursing home use and expenditures; at best, these external forces confound measurement of the effect of the waivers at the aggregate level.

For the reasons stated above, any analysis of the waiver effects using state and national level aggregate data is unlikely to be definitive. However, it is useful to use the aggregate data to describe numbers of recipients and expenditures for waiver states before and after they obtained a waiver and to compare this description to non-waiver states. These comparisons should be interpreted as indicators of gross differences between two types of states, where the definition of type includes a propensity to seek a waiver.

Trends in nursing home expenditures for programs in two groups of states were compared: those states which had an A/D waiver program and those which did not. Two different approaches are used for this comparison. The first provides a recipient weighted analysis by simply totaling the recipients and expenditures for the two groups. This will allow large states to have the most effect on the findings since they have the most recipients and expenditures. The second approach gives equal weight to all states so that any effect which occurs in small states has a equal chance of being detected. The results for both are presented below, following a description of the data sources used.

Data Sources

Data on total Medicaid nursing home expenditures (excludes waiver expenditures) and recipient counts were obtained from the HCFA Form 2082 for the years 1975

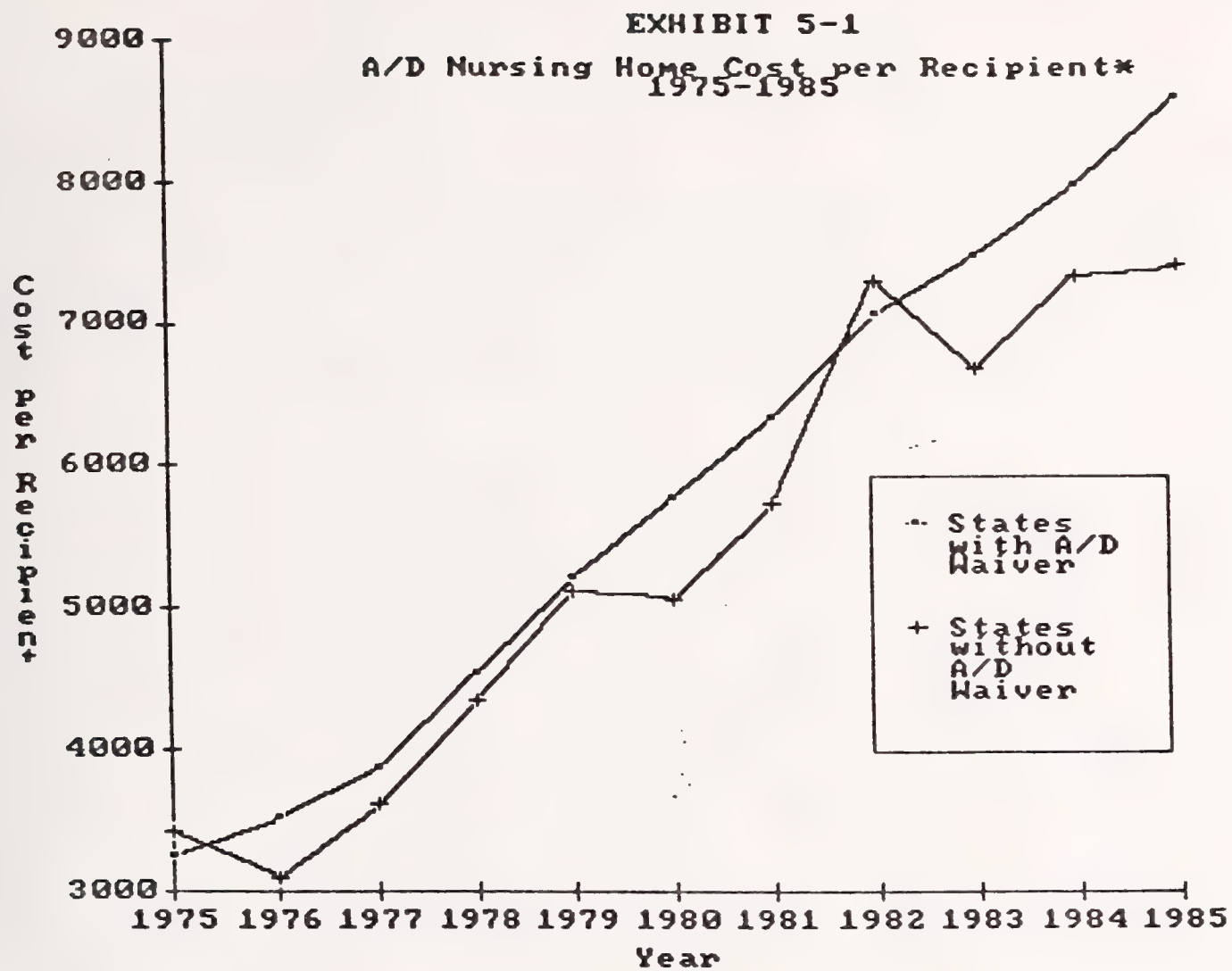
through 1985. This is an annual statistical report by States on their Medicaid expenditures and utilization, by eligibility group and type of service. The reliability of these data depends on the reliability of the Medicaid data systems from which they are derived. Reliability varies from state to state.

Data on waiver programs and recipient counts were obtained from survey data collected by La Jolla from States. These data, when combined with the HCFA 2082 data, allowed the creation of a measure of waiver program penetration. This variable was calculated by dividing the number of A/D waiver recipients in a given year by the total number of Medicaid A/D recipients (waiver and non waiver) served in the state in the same year. The data source for waiver program expenditures was the HCFA-64 quarterly expenditure reports.

A Descriptive Analysis of the A/D Waiver Programs

For the analysis that is weighted by program size (number of enrollees), state groups were compared by examining (1) their Medicaid long term care (nursing home) expenditures per recipient and (2) their average compound rate of growth in long term care (LTC) recipients and expenditures before and during the waiver program. There were 35 A/D waiver states, i.e. states that had established a waiver program for the aged and/or physically disabled prior to 1986. The 14 states without an A/D waiver program prior to 1986 included: Alaska, Arkansas, Delaware, Maryland, Michigan, Mississippi, Nebraska, Nevada, Oklahoma, Pennsylvania, South Dakota, Tennessee, Vermont, and Wyoming as well as the District of Columbia (the State of Arizona had no Medicaid program).

Exhibit 5-1 displays the LTC expenditures per Medicaid aged and disabled recipient for waiver and non-waiver states between 1975 and 1985. The expenditures per recipient for waiver states steadily increased over the 10 year period with no apparent drop during the waiver program years (1982-1985). The LTC expenditures smaller number of states included in this group. It was only in 1975 and 1982 that the LTC expenditures per recipient for non-waiver states were above that of the per recipient for the non-waiver states changed more erratically, possibly due to the



Source: HCFA Utilization and Expenditure Data, Form 2082

* = Excludes ICF-MR recipients and expenditures.

waiver states. Between 1984 and 1985 the expenditures per recipient for the non-waiver states changed very little while that of the waiver states continued an upward climb.

Exhibit 5-2 presents the growth rate for recipients, expenditures, and expenditures per recipient for 1975 - 1982 and 1983 - 1985 for waiver and non-waiver States. The method used weights each State by Medicaid population, effectively giving a larger weight to larger States. Exhibit 5-3 presents the same information but weighted so that each program (State) has equal importance. Since one of these two weighting techniques is not clearly the only "correct" approach, it seemed useful to provide both.

The information in the two tables presents a consistent pattern. There was a drop between the two time periods in the rates of growth of all of the variables. This was true for both waiver and non-waiver States. States that obtained waivers generally have higher growth rates for all of the variables both before and after the introduction of the waiver program, though the difference is statistically significant only for expenditures in the person weighted table. The standard deviations in this table are much smaller than those in the program weighted table. This is a function of the process of weighting -- one observation can represent many more people than another and there is no variation within an observation.

Since the decline between the two time periods in the rate of increase of all of these measures is similar for non-waiver and waiver States, this decline cannot be unambiguously attributed to the introduction of the waiver. Also, the non-waiver states generally continue to exhibit slower rates of growth than waiver States even after the waivers were introduced. Despite the fact that the differences are generally not statistically significant, they are not in the direction that one might expect if the waiver programs actually resulted in lower expenditures for long term care. Given the caveats discussed above regarding the limitations of this descriptive analysis and the lack of statistical significance of the waiver versus non-waiver differences, this cannot be taken as evidence that waivers do not reduce spending. However, these descriptive findings would not support an hypothesis that these programs are budget neutral or save any money to Medicaid.

EXHIBIT 5-2

AVERAGE COMPOUND RATE OF GROWTH FOR WAIVER AND NONWAIVER STATES BEFORE AND DURING THE WAIVER PROGRAM^{a/}

Waiver and Nonwaiver States	LTC Aged and Disabled Recipients (ACRG)	LTC Aged and Disabled Expenditures (ACRG)	LTC Expenditures Per Recipient (ACRG)
<u>1975-1982 (Before Waiver Program)</u>			
Waiver States	.4%	11.3%	10.9%
Nonwaiver States	-.7%	10.7%	11.4%
<u>1982-1985 (During Waiver Program)</u>			
Waiver States	.7%	7.0%	6.4%
Nonwaiver States	2.5%	5.1%	2.6%

Source: HCFA Utilization and Expenditure Data, Form 2082

^{a/} A State was treated as a waiver state if it had an Aged and/or Disabled waiver program in operation prior to 1986.

EXHIBIT 5-3

EXPENDITURES PER RECIPIENT FOR WAIVER AND NONWAIVER STATES BEFORE AND DURING THE WAIVER PROGRAM^{a/}

	1975-1982 <u>Before Waiver Program</u> Mean	1982-1985 <u>During Waiver Program</u> Mean
<u>Waiver States</u>	\$4,491	\$7,461*+
<u>Nonwaiver States</u>	\$4,944	\$8,818*

Source: HCFA Utilization and Expenditure Data, Form 2082

^{a/} The means are unweighted averages of State expenditures per recipient and differ from the averages which would be computed across recipients for all states. A State was treated as a waiver state if it had an Aged and/or Disabled waiver program in operation prior to 1986.

* Significantly different from the waiver and nonwaiver States, 1975-1982, at the .001 level.

+ Significantly different from the nonwaiver States, 1982-1985, at the .01 level.

In addition to the analysis described above, several regression models were also examined. However, many of the assumptions which must be made when conducting a regression analysis did not hold true. In an attempt to avoid these problems, ratio dependent variables were used. The first ratio model examined the change in the number of Medicaid LTC recipients served between any two years. The second examined the change in Medicaid LTC expenditures between any two years.

The independent variables used were (1) time, (2) the existence or non-existence of the waiver program, (3) the interaction of time and the existence or non-existence of the waiver, and (4) the waiver program penetration rate measured as the percent of LTC A/D recipients who were waiver clients. The existence or non-existence of the waiver program and the interaction term were included in the regression equation as controls for differences between waiver and non-waiver states. The penetration rate was included in the equation to capture the effect of the waiver program.

The findings indicate that the independent variables were unable to explain any of the variation in the percentage change for Medicaid A/D recipients or expenditures. The R^2 for each dependent variable was less than one percent. These findings (or, more accurately, the lack of a valid regression model) are not surprising in light of environmental conditions existing during the waiver program's operation, such as nursing home bed supply shortages, a low waiver penetration rate (3 percent), and major changes in other programs confounding the effects such as the introduction of Medicare's Prospective Payment System. We anticipate the cross-section/time series information on several important variables including nursing home bed supply, and program characteristics will be available for analysis through the University of California, San Francisco in the fall of 1987. This analysis will be pursued further at this time.

IMPACT OF THE DD/CMI WAIVERS ON ICF-MR USE AND EXPENDITURES

This Section presents the results of analyses of waiver program impacts on aggregate ICF-MR use and costs at the State and national level. We undertook this analysis because, unlike Section 2176 waiver programs for the aged and disabled, the number of developmentally disabled waiver recipients is now large enough to expect measurable impacts at the State and national levels.

In Federal FY 1985, there were approximately 24,450 unduplicated recipients of waiver services in 31 States, and 143,800 unduplicated recipients of ICF-MR services in all States. Thus, of the total population "at risk" of ICF-MR placement, 15%, or about 1 in 7, were served under the waiver. At this level of "waiver program penetration," it is reasonable to expect measurable impacts on aggregate ICF-MR use, if waiver services are indeed substituting for ICF-MR services.

HCFA officials are also concerned that states may be using the waiver program to provide home and community-based service to individuals who are not truly at risk of institutionalization. States have large incentives to use the waiver for persons who are not at risk of ICF-MR placement, basically because States use a lot of their own general revenue funds to provide services to mentally retarded persons outside of ICF-MRs, and this is an opportunity for States to gain FFP for the cost of these services. Therefore, this monograph also presents an analysis of waiver impacts on combined ICF-MR and waiver use.

There is perhaps less reason to expect measurable impacts on expenditures for ICF-MR care. In Federal FY 1985, total expenditures for waiver services (by date of payment, not date of service) were approximately \$175 million in waiver States, compared to ICF-MR expenditures of \$4,712 million in all States. Thus, while waiver recipients comprised about 15% of the total "at risk" population, waiver expenditures accounted for only about 3.6% of total expenditures for the same population. This is because the average annual cost of waiver services for the developmentally disabled was only about one-fourth the average cost of ICF-MR care, as reported by the States. The lower cost may be a result of a selection process whereby the least costly patients are enrolled in the waiver program or are otherwise deinstitutionalized.

Data

For the analyses that follow, the core data consists of two six-year time series, beginning in 1980 and ending in 1985, for 48 states and Washington, D.C. (Arizona and Wyoming do not have ICF-MR programs). One time series is the annual total number of ICF-MR recipients in each state. The other time series is the annual total ICF-MR expenditures in each state.

Although ICF-MR programs have been in place for longer than six years in most states, the available data for years prior to 1980 are unreliable and more difficult to verify than the more recent data. The waiver program was enacted in 1981 and the earliest waivers were implemented FY 1982. Therefore, the six-year study period includes at least two years of nonwaiver experience for all states.

These data were obtained from HCFA 2082 data reported for each Federal fiscal year (October through September) by the states. The accuracy of these data varies depending on how conscientious state Medicaid officials were about accurate reporting.

The edited ICF-MR recipient data are reported in Exhibit 5-4. An asterisk indicates that a waiver was in effect for at least some part of the fiscal year (a waiver may go into effect at any time during a year). The number of ICF-MR recipients for Connecticut in 1980 was unobtainable for this study.

Exhibit 5-5 presents ICF-MR expenditures for the years 1980-1985, and Exhibit 5-6 shows ICF-MR expenditures per recipients based on Exhibit 5-4 and Exhibit 5-5. Connecticut's 1980 value is missing because the number of ICF-MR recipients is missing for that year. Nationally, expenditures per recipient increased from \$19,800 in 1980 to \$33,000 in 1985, for a total increase of 67 percent and an average increase of 10.7 percent compounded annually during the study period. In FY 1985, the states with highest expenditures per recipient were Alaska (\$81,176), Massachusetts (\$64,774), and New York (\$54,283). The states with lowest expenditures per recipient were West Virginia (\$10,101), Mississippi (\$14,075), Utah (\$17,301), and Indiana (\$18,582).

Other data critical to these analyses include waiver effective dates, waiver implementation dates, waiver termination dates, the number of unduplicated recipients of waiver services in FY 1985, whether waiver recipients were restricted to those drawn directly from ICF's, the number of new FY 1985 waiver enrollees who were taken directly from ICF's, and the FY 1985 "penetration rates." These data, from a survey of waiver states conducted by La Jolla Management Corporation are reported in Exhibit 5-7, and explained below.

ICF-MR RECIPIENTS

STATE	FISCAL YEAR					
	1980	1981	1982	1983	1984	1985
AK	205	288	290	124	118	125
AL	697	637	1,451	1,477*	1,461*	1,468*
AR	2,206	1,511	1,444	1,420	1,468	1,452
CA	10,517	10,430	10,173*	9,960*	10,160*	9,740*
CO	1,674	1,674	1,989	2,044*	1,696*	1,574*
CT	.	1,372	1,317	1,368	1,378	1,309
DC	444	409	373	446	521	561
DE	454	462	464	482*	482*	442*
FL	1,248	1,610	2,221*	2,871*	2,948*	3,221*
GA	1,739	1,789	1,811	1,795	1,767	1,750
HI	0	429	388	385*	375*	331*
IA	1,680	1,735	1,720	1,713*	1,726*	1,856*
ID	444	519	523	525	515*	509*
IL	5,882	6,958	8,034	7,783	8,602*	8,546*
IN	1,890	2,049	2,196	2,112	2,113	2,195
KS	1,476	1,994	2,213*	2,256*	2,255*	2,280*
KY	637	1,345	1,588	1,555*	1,464*	1,264*
LA	4,024	4,597	4,627*	5,676*	5,412*	5,710*
MA	4,976	2,967	2,657	3,060	2,343*	3,533*
MD	1,961	2,046	2,044	2,107	2,025*	1,865*
ME	0	665	652	676	730*	709*
MI	5,363	5,340	4,392	4,017	3,591	3,670
MN	6,357	6,730	7,401	7,739	7,773*	7,808*
MO	2,152	2,255	2,402	2,518	2,667	1,908
MS	896	1,184	1,427	1,629	1,655	1,649
MT	276	255	275*	269*	268*	284*
NC	1,933	2,268	2,594	2,997*	2,882*	3,083*
ND	0	0	47	302*	564*	649*
NE	1,005	915	1,027	943	896	894
NH	329	325	317	310*	380*	374*
NJ	5,078	5,432	5,155	4,530*	4,246*	4,027*
NM	486	570	593	617	594*	624*
NV	204	196	210*	218*	210*	205*
NY	16,017	16,384	16,518	17,172	17,347	17,822
OH	4,423	5,146	6,251	6,950	7,522	7,442
OK	1,898	1,880	1,787	1,714	1,648	2,456
OR	1,893	2,099	2,530*	2,036*	1,976*	1,856*
PA	8,538	8,697	8,856	8,701	8,546*	8,317*
RI	1,033	861	843	1,038*	1,094*	1,164*
SC	2,169	1,664	2,396	2,577	2,481	2,487
SD	807	801	815*	729*	718*	748*
TN	2,443	2,602	2,593	2,597	2,481	2,762
TX	12,354	13,012	13,441	13,182	13,115	12,807
UT	1,307	1,263	1,254	1,301	1,335	1,386
VA	4,939	5,089	4,616	4,500	3,285	3,220
VT	481	411	413*	383*	292*	282*
WA	2,443	2,506	3,005	2,847	2,844*	2,841*
WI	2,558	2,937	2,438	2,772	2,873*	2,384*
WV	171	178	136	210	235*	258*
TOTAL	129,707	136,486	141,907	144,633	143,077	143,847

SOURCE: Edited HCFA 2082 data.

* Waiver year.

ICF-HR EXPENDITURES (\$1,000)

STATE	FISCAL YEAR					
	1980	1981	1982	1983	1984	1985
AK	6,074	9,641	11,043	8,177	8,818	10,147
AL	13,863	17,407	29,391	50,481*	48,631*	49,319*
AR	25,655	30,492	34,245	38,567	40,054	42,381
CA	141,050	224,851	269,584*	248,340*	257,004*	277,576*
CO	25,730	32,152	41,078	45,705*	37,803*	49,117*
CT	0	41,576	35,021	45,453	50,898	59,373
DC	9,491	5,758	4,411	12,621	16,093	21,488
DE	6,517	7,407	8,069	9,444*	10,325*	9,834*
FL	13,548	28,825	47,620*	72,553*	98,925*	116,326*
GA	38,654	44,882	51,393	46,232	51,545	61,750
HI	0	0	10,947	11,624*	9,447*	8,824*
IA	39,429	45,026	52,270	57,934*	56,235*	60,954*
ID	7,254	10,046	14,592	15,620	15,096*	15,984*
IL	70,712	130,966	145,444	178,878	188,952*	215,970*
IN	25,785	31,952	37,684	33,643	34,450	40,788
KS	34,808	34,534	40,558*	45,140*	47,465*	49,484*
KY	20,551	29,306	32,948	33,422*	38,729*	39,717*
LA	65,638	75,692	112,876*	116,244*	135,222*	136,985*
MA	121,438	116,479	126,979	181,387	143,907*	228,846*
MD	44,188	48,196	53,170	55,430	60,650*	66,361*
ME	0	9,431	15,786	21,488	24,421*	24,884*
MI	130,804	155,587	149,989	148,036	143,129	157,208
MN	116,214	112,433	155,005	176,345	205,706*	202,213*
MO	30,533	38,064	41,183	57,340	57,263	52,325
MS	9,720	12,766	18,517	22,159	23,611	23,210
MT	4,524	4,374	5,183*	5,508*	6,083*	8,088*
NC	44,466	60,618	77,203	85,287*	96,700*	111,954*
ND	0	0	534	4,736*	9,820*	18,318*
NE	15,217	16,754	21,336	20,977	23,206	24,090
NH	5,084	5,722	6,339	5,765*	9,881*	14,880*
NJ	133,194	112,586	131,076	138,280*	163,200*	166,248*
NM	6,493	9,271	11,922	13,015	17,131*	17,294*
NV	3,665	4,782	5,661*	6,792*	7,345*	8,769*
NY	558,694	743,748	797,309	821,458	796,360	967,428
OH	69,573	74,395	112,905	140,427	176,227	186,709
OK	27,541	34,010	32,395	37,010	39,422	53,675
OR	36,452	38,432	39,507*	46,135*	49,212*	51,992*
PA	205,700	249,831	340,448	369,191	359,773*	344,665*
RI	23,328	28,817	31,039	41,010*	44,194*	43,869*
SC	30,823	28,943	33,294	44,589	45,977	53,057
SD	11,787	10,831	14,890*	13,570*	15,613*	15,875*
TN	44,019	52,258	57,291	58,200	63,325	63,438
TX	159,781	191,748	227,311	261,722	268,856	265,694
UT	16,028	18,792	20,541	23,492	23,102	23,979
VA	54,186	70,597	81,904	89,663	89,807	94,968
VT	9,454	11,355	16,968*	13,713*	12,405*	12,800*
WA	52,342	65,525	78,864	83,833	88,362*	101,515*
WI	56,090	75,857	63,795	72,178	72,620*	68,139*
WV	909	1,094	883	1,374	1,818*	2,606*

TOTAL 2,567,006 3,203,809 3,748,401 4,130,188 4,284,818 4,741,114

SOURCE: Edited HCFA 2082 data.

* Waiver year.

ICF-MR EXPENDITURES PER RECIPIENT (\$)

STATE	FISCAL YEAR					
	1980	1981	1982	1983	1984	1985
AK	29,629	33,476	38,079	65,944	74,729	81,176
AL	19,890	27,327	20,256	34,178*	33,286*	33,596*
AR	11,630	20,180	23,715	27,160	27,285	29,188
CA	13,412	21,558	26,500*	24,934*	25,296*	28,499*
CO	15,370	19,207	20,653	22,361*	22,290*	31,205*
CT	.	30,303	26,591	33,226	36,936	45,358
DC	21,376	14,078	11,826	28,298	30,889	38,303
DE	14,355	16,032	17,390	19,593*	21,421*	22,249*
FL	10,856	17,904	21,441*	25,271*	33,557*	36,115*
GA	22,228	25,088	28,378	25,756	29,171	35,286
HI	0	21,977	28,214	30,192*	25,192*	26,659*
IA	23,470	25,952	30,390	33,820*	32,581*	32,842*
ID	16,338	19,356	27,901	29,752	29,313*	31,403*
IL	12,022	18,822	18,104	22,983	21,966*	25,271*
IN	13,643	15,594	17,160	15,929	16,304	18,582
KS	23,583	17,319	18,327*	20,009*	21,049*	21,704*
KY	32,262	21,789	20,748	21,493*	26,454*	31,422*
LA	16,312	16,466	24,395*	20,480*	24,986*	23,990*
MA	24,405	39,258	47,790	59,277	61,420*	64,774*
MD	22,533	23,556	26,013	26,308	29,951*	35,582*
ME	0	14,182	24,212	31,787	33,453*	35,097*
MI	24,390	29,136	34,151	36,852	39,858	42,836
MN	18,281	16,706	20,944	22,787	26,464*	25,898*
MO	14,188	16,880	17,145	22,772	21,471	27,424
MS	10,848	10,782	12,976	13,603	14,266	14,075
MT	16,391	17,153	18,847*	20,476*	22,698*	28,479*
NC	23,004	26,728	29,762	28,457*	33,553*	36,313*
ND	0	0	11,362	15,682*	17,411*	28,225*
NE	15,141	18,310	20,775	22,245	25,900	26,946
NH	15,453	17,606	19,997	18,597*	26,003*	39,786*
NJ	26,230	20,726	25,427	30,525*	38,436*	41,283*
NM	13,360	16,265	20,105	21,094	28,840*	27,715*
NV	17,966	24,398	26,957*	31,156*	34,976*	42,776*
NY	34,881	45,395	48,269	47,837	45,908	54,283
OH	15,730	14,457	18,062	20,205	23,428	25,089
OK	14,511	18,090	18,128	21,593	23,921	21,855
OR	19,256	18,310	15,615*	22,660*	24,905*	28,013*
PA	24,092	28,726	38,443	42,431	42,098*	41,441*
RI	22,583	33,469	36,820	39,509*	40,397*	37,688*
SC	14,211	17,394	13,896	17,303	18,532	21,334
SD	14,606	13,522	18,270*	18,615*	21,745*	21,223*
TN	18,018	20,084	22,094	22,410	25,524	22,968
TX	12,934	14,736	16,912	19,854	20,500	20,746
UT	12,263	14,879	16,380	18,057	17,305	17,301
VA	10,971	13,872	17,744	19,925	27,339	29,493
VT	19,655	27,628	41,085*	35,804*	42,483*	45,390*
WA	21,425	26,147	26,244	29,446	31,070*	35,732*
WI	21,927	25,828	26,167	26,038	25,277*	28,582*
WV	5,316	6,146	6,493	6,543	7,736*	10,101*
TOTAL	19,791	23,543	26,414	28,556	29,948	32,959

SOURCE: Edited HCFA 2082 data.

* Waiver year.

Exhibit 5-7

WAIVER DATA

(1) STATE	(2) EFFECTIVE DATE	(3) IMPLEMENT DATE	(4) TERMINATE DATE	(5) FY 1985 WAIVER RECIPIENTS	(6) DIRECT FROM ICF	(7) FY 1985 WAIVER RECIPIENTS FROM ICF	(8) FY 1985 TOTAL RECIPIENTS(a)	(9) FY 1985 PENETRATION RATE
AL	01OCT82	01OCT82		1535	NO	7	2996	0.04
CA	01JUL82	01JUL82		3486	NO	168	13058	0.68
CO	01OCT82	16AUG83		1284	NO	133	2723	0.49
DE	01JUL83	01JUL83		62	YES	7(b)	497	1.00
FL	01APR82	01APR82		6979	NO	1128(b)	9072	n/a
HI	01JUL83	01SEP83		33	YES	9(b)	355	1.00
IA	01JAN82	01OCT82	30SEP83	78	NO	0	1934	0.00
ID	01JAN84	01JAN84		45	NO	3	551	0.12
IL	01DEC83	01DEC83		560	NO	165	8941	0.65
KS	03MAR82	01JUL82		201	NO	62(c)	2419	n/a
KY	01APR83	01APR83		512	NO	25	1751	0.19
LA	01APR82	01JUL82		1890	NO	0	7600	0.00
MA	01JAN84	01JAN84	31DEC84	n/a	NO	n/a	3533	n/a
MU	13FEB84	13FEB84		379	YES	96(b)	2146	1.00
ME	01JUL83	18NOV83		127	NO	75	761	0.24
MN	01JUL84	01JUL84		246	NO	91	7963	0.42
MT	01DEC81	01DEC81		190	NO	75	399	0.39
NC	01JUL83	01JUL83		109	NO	11	3181	0.19
ND	01APR83	01APR83		410	NO	49(b)	1010	n/a
NH	01SEP83	01SEP83		425	NO	66	733	0.57
NJ	01OCT82	01OCT82		2046	NO	23	6050	0.03
NM	01JUL83	01JUL84		53	NO	5	672	0.11
NV	01JUL82	01JUL82		363	NO	38	530	0.61
OR	23DEC81	23DEC81		415	NO	107(c)	2164	n/a
PA	01JUL83	12NOV83		274	YES	130(b)	8461	1.00
RI	01JUL83	01JUL83		238	NO	10	1392	0.08
SD	01JAN82	01JAN82		575	NO	67	1256	0.40
VT	01APR82	01JUL82		196	NO	3	475	0.33
WA	01DEC83	01DEC83		945	NO	29(b)	3777	n/a
WI	06OCT83	01DEC83		66	YES	40(b)	2410	1.00
WV	01JUL82	01MAR84	30JUN85	45	YES	24(b)	279	1.00

SOURCE: Survey of Waiver Programs. La Jolla Management Corporation. January, 1986.

NOTE: n/a indicates data were missing on the survey.

a. Estimated by subtracting column 7 from the sum of column 5 and "FY 1985 ICF-MR Recipients" (Table 1, last column).

b. Estimated as the difference between 1984 Waiver Recipients (not shown) and 1985 Waiver Recipients. This is an estimate of the number of new FY 1985 waiver recipients. It is most likely an overestimate for states other than "direct" states, because it assumes that all new FY 1985 waiver recipients were drawn from ICFs.

c. Estimated by assuming that all FY 1985 Waiver Recipients were taken directly from ICFs at a constant rate, without losses, beginning at the implementation date.

The effective dates (column 2) are the dates on which HCFA allowed states to begin billing for waiver services. The implementation dates (column 3) are the dates on which states actually began providing services billed as waiver services. For analytical purposes, states are not considered "waiver states" until the implementation date because we would not expect the waiver to significantly affect ICF-MR utilization and expenditures before waiver services were provided. For this reason, Oklahoma is considered to be a nonwaiver state throughout these analyses because the implementation date is in FY 1986. Only three states terminated their waiver during the study period and all three termination dates (column 4) are in FY 1985. Iowa's termination is not a consideration in these analyses because its waiver was terminated at the end of the study period. Pennsylvania had two waivers, run in two separate areas of the state. However, we combined the outcomes from the two programs for these analyses.

The number of (unduplicated) recipients of waiver services during FY 1985 (column 5) were not provided on the survey by Kansas, Massachusetts, or Oregon. For Kansas and Oregon the survey-reported caseload on September 30, 1985 is substituted as a conservative estimate of the number of recipients served under the waiver. The only information provided by Massachusetts was that a total of 563 clients had been enrolled in the waiver program since it began on January 1, 1984. In granting Oregon's waiver renewal effective February 7, 1985, HCFA negotiated areeducation in the waiver caseload from 1,850 recipients to 415 recipients. The lower figure was used in these analyses.

Only six states required waiver recipients to be drawn directly from ICFs (column 6): Delaware, Hawaii, Maryland, Pennsylvania, West Virginia, and Wisconsin. These states are called "direct" states. Other states may have had less stringent restrictions. For example, Rhode Island provided waiver services only to patients who would have been discharged from a hospital to a nursing home. Only two states, Iowa and Louisiana, did not draw any waiver clients from ICFs.

Column 8 is an estimate of the total number of combined waiver recipients and ICF-MR recipients during FY 1985. The derivation of this estimate will be explained later in the total recipient analysis.

The "penetration rate" (column 9) in Exhibit 5-7 is the percentage of new FY 1985 enrollees that were taken directly from ICFs. The remainder of the new enrollees were taken from the community and were supposedly "at risk" of ICF-MR enrollment. The penetration rates for "non-direct" states may have been substantially different in other years, depending on when the waiver was implemented and on the demand for waiver services. The number of new recipients is the product of column 7 and the inverse of column 9.

For later analyses, the states are grouped according to the fiscal year of the waiver implementation date. This results in four groups of states:

- 1) Nonwaiver states that did not implement a waiver before September 30, 1985,
- 2) '82 Waiver states that implemented the waiver in FY 1982,
- 3) '83 Waiver states that implemented the waiver in FY 1983, and
- 4) '84 Waiver states that implemented the waivers in FY 1984.

Statistical Analyses

The primary objective of these analyses is to determine the effects of the waiver on ICF-MR utilization and expenditures. To do this, the outcomes from waiver states should be compared to outcomes from a standard representing those same states without the waiver. Classically, this would be achieved by assigning states to either a waiver "treatment" group or a nonwaiver "control" group at random. For large samples, this random assignment would ensure that the outcomes from the nonwaiver group would correspond to those of a waiver group without the waiver. The waiver effects could then be estimated by simple comparisons of mean outcomes from the two groups.

However, the states were not randomized to waiver and non-waiver groups. Each of the states made a decision whether to apply for a waiver, and each state had to demonstrate cost savings before HCFA granted a waiver. Therefore, the states selected themselves for consideration and HCFA then granted waivers to selected states. These selections compromised the randomization process with the result that

nonwaiver states, some of whom sought a waiver but were denied, may have been fundamentally different from waiver states with respect to the primary outcomes under study: ICF-MR utilization and expenditures.

In the language of the quasi-experimental design literature, the resulting waiver groups may be "nonequivalent". Selectivity problems in the context of the evaluation of treatment effects in nonequivalent control group designs have been discussed in the statistical literature by several authors including Reichardt (1979), Weisberg (1979), Olejnik and Porter (1981), and Muthen and Joreskog (1983). These authors propose a variety of statistical methods to compensate for selectivity bias in the comparison of outcomes. The choice of method depends on the quasi-experimental design, the selection procedure, and the analytical assumptions.

The simplest of these statistical methods relies on differences in pretreatment (pre-waiver) outcomes to adjust for selectivity bias. These methods assume that differences in pre-waiver outcomes are sufficient to explain any bias between waiver and non-waiver groups. The more complicated methods rely on differences between characteristics of states in each group to adjust for selectivity bias on the assumption that certain characteristics are correlated with outcomes. We lack a theoretical framework for these more complicated methods. That is, we do not have a basis for asserting a correlation between state characteristics and outcomes. Therefore, we will rely on the simpler methods to adjust for selectivity bias.

In order to avoid violating the assumption of the linear regression model that individual error terms are not larger for large programs and smaller for small programs, we will study differences between ratios rather than differences between unscaled outcomes. For example, we will compare the percentage change in recipients between waiver states and nonwaiver states so that changes are scaled to program size.

Several researchers have recommended a cross-sectional time series (CSTS) analysis for these data. After all, there are 49 cross-sections (states) each having a

six-year time series (1980-1985). Unfortunately, CSTS methods must satisfy a host of statistical assumptions. The model may be written:

$$Z(i,y) = X(i,y)B + U(i,y) \quad i=1,2,\dots,C \quad y=1,2,\dots,Y.$$

$Z(i,y)$ is the outcome (number of recipients or expenditures) for state i in year y , $X(i,y)$ is a vector of explanatory variables (such as the existence of a waiver), B is a vector of regression coefficients to be estimated and $U(i,y)$ is a stochastic error term. CSTS methods require the researcher to assume that the error terms have a certain correlation structure. For example, it might be assumed that the error terms follow an autoregressive process or a moving-average process over time; or it might be assumed that outcomes are correlated between states (i.e., federal policy may cause all state outcomes to move uniformly in a given direction). Again, we lack a theoretical framework to support any one of these assumptions. Moreover, the time series is too short to empirically estimate the stochastic process with any degree of confidence or precision, and the results of CSTS methods are highly sensitive to departures from these assumptions.

Although we fit a CSTS model under a set of "reasonable" assumptions and report the results later in this chapter, we will initially employ simple statistical methods that require few assumptions about the error structure and that are robust to outliers in the data. For example, any unexplained changes in some states' level of recipients will have little influence in the statistical analysis. The price paid for using such methods is that, compared to using the correct (but unknown) CSTS model, statistical power is sacrificed. That is, the effect of the waiver has to be relatively large before these simpler methods acknowledge a statistically significant effect.

ICF-MR Expenditures per Recipient Analysis

Certainly, a sensible standardization of state expenditures is to divide by the number of recipients. However, it is not possible to infer the trend in either expenditures or recipients from the trend in expenditures per recipient. A flat trend implies only that the trend in expenditures is proportional to the trend in recipients, but it does not imply the direction of the trend.

Increasing expenditures per recipient can be the result of expenditures increasing at a faster rate than recipients or expenditures decreasing at a slower rate than recipients (and vice-versa for decreasing expenditures per recipient). Therefore, no matter what differences are found between waiver and nonwaiver states in expenditures per recipient, a study would have to be made of either expenditures or recipients to determine the effect of the waiver on them both. Therefore, we will individually analyze the trends in expenditures and recipients.

ICF-MR Recipient Analysis

Changes in the number of recipients are measured in proportion to program size. For example, if a typical increase is 10 percent, then an increase from 200 to 220 recipients in one state is equivalent to an increase from 400 to 440 in another state, even though the increase in the latter state is twice the absolute increase in the former state. Moreover, each state will have equal weight in the analysis because we are interested in the effect that the waiver has in a typical state, not just the states with the largest programs.

If the waiver was effective in substituting home- and community-based services for ICF-MR services then the ICF-MR population in waiver states should have grown at a slower rate than in nonwaiver states after the waiver went into effect. We will therefore test the hypothesis that the waiver did not affect the post-waiver trend in ICF-MR recipients against the hypothesis that the waiver did affect the trend. We will do this by comparing the median recipient percentage change within a waiver group over the waiver period to the corresponding change in the nonwaiver group. For example, we will compare the median change from 1981 to 1985 in the nonwaiver group.

The median is used rather than the mean because it is not as sensitive to outliers. One can think of the median change as the "typical" change for a group. We test the change to 1985 rather than to another post-waiver year. But, the change through 1985 measures the net effect to date regardless of when an effect took place.

A fundamental assumption for this analysis is that the trend in nonwaiver states was the same as what trend would have been in waiver states without the waiver.

We test this assumption by comparing the distribution of changes within a waiver group from 1980 to the last pre-waiver year against the corresponding changes in the nonwaiver group. We employ both the Median Test and the Mann-Whitney Test. Both tests start by ranking the combined waiver group and nonwaiver group recipient ratios (198x Recipients - 1980 Recipients) from smallest to largest. The Median Test is essentially a test of the equality of medians of two independent distributions. It compares the proportion of states above the median in the waiver group. If each group has about one-half of its states above (and below) the median, then the null hypothesis is not rejected that the pre-waiver trends in the two groups are the same. However, if one group tends to have more states above the median than the other group, then the null hypothesis is rejected. The Mann-Whitney Test is more sensitive than the Median Test to the possibility that increases in one group may tend to be larger than those in another group, even though the group median may not differ significantly (i.e., states in one group tend to fall into the second and forth quarter). It counts the number of nonwaiver states that have larger increases than each state in the comparison waiver group. If the nonwaiver states tend to have larger or smaller increases than the waiver states, then the null hypothesis is rejected.

The ranked recipient ratios and the test statistics are shown in Exhibit 5-8. The first set compares the ratios of 1981 recipients to 1980 recipients for the '82 waiver states to the nonwaiver states. The median ratio is about 1.025, indicating a typical increase of 2.5 percent in ICF-MR recipients between 1980 and 1981 in the combined groups. Each group has about half its states above and below the median, therefore the null hypothesis that the pre-waiver trend in the '82 waiver group was the same as the pre-waiver trend in the nonwaiver group is not rejected. The hypothesis is rejected for the '84 waiver group. It is clear from Exhibit 5-8 that the '84 waiver group (omitting Maine) tended to have a higher recipient growth rate between 1980 and 1983 than the nonwaiver group did. The median growth for the nonwaiver group was 3 percent and the median growth for the '84 waiver group was 17 percent.

Ranked ICF-MR Prewsiver Recipient Ratios (1980 Denominators)
Each Waiver Group Combined with the Nonwaiver Group

State	Waiver Group	'81 Ratios		State	Waiver Group	'82 Ratios		State	Waiver Group	'83 Ratios	
		'81 Ratios	'80 Ratios			'82 Ratios	'80 Ratios			'83 Ratios	'80 Ratios
AR	NON	0.68495		AR	NON	0.45458		AK	NON	0.60468	
SC	NON	0.76717		RI	'83	0.81607		MA	'84	0.61495	
UT	'82	0.85447		HI	NON	0.81894		AR	NON	0.64370	
NE	NON	0.91045		DC	NON	0.84009		MI	NON	0.74902	
DC	NON	0.92117		VA	NON	0.93460		OK	NON	0.90304	
MT	'82	0.92391		OK	NON	0.94152		VA	NON	0.91112	
WV	'82	0.94078		UT	NON	0.95945		NE	NON	0.93831	
UT	NON	0.96634		WV	'83	0.96353		UT	NON	0.99341	
OK	NON	0.99032		NJ	'83	1.01514		DC	NON	1.00450	
CA	'82	0.99173		ME	NON	1.02189		PA	'84	1.01909	
SD	'82	0.99257		DE	'83	1.02203		GA	NON	1.03220	
MI	NON	0.99571		IA	'83	1.02381		TX	NON	1.04304	
NY	NON	1.02291		NY	NON	1.03128		TX	NON	1.04702	
								NY	NON	1.07211	
											Median
GA	NON	1.02875		GA	NON	1.04140		MD	'84	1.07445	
VA	NON	1.03037		TX	NON	1.04140		WI	'84	1.08244	
MO	NON	1.04784		TX	NON	1.08799		IN	NON	1.11744	
TX	NON	1.05324		BC	NON	1.10464		WA	'84	1.16337	
TX	NON	1.06508		MO	NON	1.11417		MO	NON	1.17007	
IN	NON	1.08413		IN	NON	1.14190		MO	'84	1.18243	
OR	'82	1.10882		CO	'83	1.18817		ID	NON	1.18811	
LA	'82	1.14240		NC	'83	1.34194		EC	NON	1.21740	
OH	NON	1.16344		OH	NON	1.41329		WA	'84	1.22007	
FL	'82	1.29004		AK	NON	1.41463		WV	'84	1.24988	
MS	NON	1.32143		MS	NON	1.59263		MI	'84	1.32319	
KS	'82	1.35095		AL	'83	2.08178		IL	'84	1.57133	
AK	NON	1.40488		KY	'83	2.49294		MS	NON	1.81808	
											Median

Median Test Chi-square (1 D.F.) = 4.92
P = 0.031 Reject H₀.

Mann-Whitney Test Z-score = 1.74
P = 0.081 Do not reject H₀.

Median Test Chi-square (1 D.F.) = 1.0
P = 1.001 Do not reject H₀.

Mann-Whitney Test Z-score = 0.57
P = 0.501 Do not reject H₀.

Median Test Chi-square (1 D.F.) = 1.0
P = 1.001 Do not reject H₀.

Mann-Whitney Test Z-score = 0.24
P = 0.811 Do not reject H₀.

SOURCE: Edited MCFA 2082 Data.

NOTE: H₀: No difference in prewaiver ICF-MR recipient trend between nonwaiver group and waiver group.

Two states, Hawaii and North Dakota, were omitted from the '83 group and one state, Maine, was omitted from the '84 group because there were not any ICF-MR recipients in 1980. North Dakota will be omitted from future analyses because its ICF-MR program started the year before the waiver was implemented and the substantial increase in recipients (see Exhibit 5-4) during the waiver years was probably largely attributable to the building of a new program. But Hawaii and Maine do not appear to have gotten off to such a slow start, so they will be included in the post-waiver analysis. Therefore, to include them in the trend comparison with nonwaiver states, we retested the '83 group and the '84 group using 1981 as a base year rather than 1980. The results are shown in Exhibit 5-9. The median pre-waiver trend for the '84 group was not significantly different from that of the nonwaiver group between 1981 and 1983.

We now test the hypothesis of interest: whether the post-waiver trend in waiver states was different than the corresponding trend in nonwaiver states. The Median Test and the Mann-Whitney Test are again used, this time to test, for example, whether the median change in ICF-MR recipients between 1981 and 1985 for the '82 waiver group was different than the corresponding change from the nonwaiver group. For each waiver group the change is measured by the ratio of the number of 1985 ICF-MR recipients to the number of ICF-MR recipients in the year before the waiver went into effect. If the waiver was effective in reducing the number of ICF-MR recipients, then the waiver groups should tend to have a lower ratio than the nonwaiver group. The results are summarized in Exhibit 5-10.

A CSTS regression model (equation 1) was also fit to these data. However, the dependent variable is the ratio of current-year recipient to previous-year recipients, rather than the ratio of 1985 recipients to pre-waiver-year recipients. For example, the dependent variable is the ratio of 1981 recipients to the 1980 recipients, the ratio of 1982 recipients to 1981 recipients and so on. Therefore each state has a time series of five observations corresponding to 1981, 1982, 1983, 1984 and 1985 recipient ratios.

The explanatory variables consist of four "year" dummy variables that take values zero or one to indicate whether the ratio corresponds to 1982, 1983 1984, or 1985 (the dummy for 1981 is omitted) and four "waiver" dummy variables that take values zero

Ranked ICF-MR Prewaiver Recipient Ratios (1981 Denominator)
'83 Waiver and '84 Waiver States Combined with Nonwaiver States

State	Waiver Group	'82 Recips		State	Waiver Group	'83 Recips	
		'81 Recips	Median			'81 Recips	Median
MI	0	0.82247		AK	0	0.43034	
HI	83	0.90443		HI	0	0.75225	
VA	0	0.90705		VA	0	0.88424	
DC	0	0.91198		OK	0	0.91170	
HJ	83	0.94901		AR	0	0.93977	
OK	0	0.95053		WI	84	0.94382	
AR	0	0.95564		CT	0	0.99708	
CT	0	0.95991		TM	0	0.99808	
MH	83	0.97538		PA	84	1.00044	
RI	83	0.97909		GA	0	1.00335	
IA	83	0.99135		ID	84	1.01134	
UT	0	0.99287		TX	0	1.01304	
TM	0	0.99454		NE	84	1.01634	
DE	83	1.00433		MD	84	1.02981	
				UT	0	1.03009	
AK	0	1.00494		NE	0	1.03040	
NY	0	1.00818		IN	0	1.03073	
GA	0	1.01230		MA	84	1.03134	
TX	0	1.03297		NY	0	1.04810	
MO	0	1.04519		NH	84	1.08244	
IN	0	1.07174		DC	0	1.09044	
ME	0	1.12240		NO	0	1.11443	
NC	83	1.14374		IL	84	1.11837	
KY	83	1.18047		WA	84	1.13407	
CO	83	1.18817		NM	84	1.14993	
MS	0	1.20524		WV	84	1.17978	
OH	0	1.21473		OH	0	1.35084	
SC	0	1.43990		MS	0	1.37884	
AL	83	2.27784		SC	0	1.54848	

Median Test Chi-square (1 D.F.) = 0.14
P = .691 Do not reject H₀.

Mann-Whitney Test Z-score = 0.14
P = .891 Do not reject H₀.

SOURCE: Edited HCFA 2082 Data.

NOTE: H₀: No difference in prewaiver ICF-MR recipient trend between nonwaiver group and waiver group.

Median Test Chi-square (1 D.F.) = 0.02
P = .891 Do not reject H₀.

Mann-Whitney Test Z-score = 1.08
P = .281 Do not reject H₀.

Ranked Postwaiver ICF-MH Recipient Ratios
Each Waiver Group Combined with the Nonwaiver Group

Median Test Chi-square (1 D.F.) = 0.0
p = 1.00! Do not reject H₀.

Median Test Chi-square (1 D.F.) = .02
p = 0.871 Do not reject H0.

Mann-Whitney Test Z-score = 0.09
p = .93! Do not reject H0.

Median Test Chi-square (1 D.F.) = 0.0
p = 1.00! Do not reject H0.

Mann-Whitney Test Z-score = -0.05
p = .94! Do not reject H0.

Source: Edited WFA 2002 Data.

NOTE: NO! No difference in Prosealver ICF-NR recipient trend between nonwaiver group and waiver group.

or one to indicate whether the ratio corresponds to the first, second, third, or fourth waiver year. One of the waiver dummy variable is equal to one if a waiver was in effect during the year and the other waiver dummies are equal to zero. Therefore, the waiver dummies are always to zero for nonwaiver states. Inference from the CSTS model are based on sample means rather than sample medians. This analysis is therefore more sensitive to outliers than the preceding analysis. The CSTS model assumes that observations across states are not correlated but that observations within states are serially correlated over time. A technical discussion of the regression model is presented in Appendix 5-A.

The regression results are presented in Exhibit 5-11. The 45-state regression omits Connecticut, Hawaii, Maine, and North Dakota because they did not have any 1980 ICF-MR recipients. The 42-state regression also omits Alaska, Alabama, and Kentucky because they were highly influential (outliers) in the 45-state regression. The model assumes that the effect of the first waiver year is additive and is the same for all waiver states regardless of the calendar year. This assumption also applies to the second, third, and fourth waiver year effects.

The intercept estimate is for the average 1981 ratio (ratio of 1981 recipients to 1980 recipients) over all states. Thus, according to the 45-state regression, the average increase between 1980 and 1981 in ICF-MR recipients was 6.9 percent. The current year = 82 estimate is the deviation of the 1982 ratio from the 1981 ratio, for states without a waiver in 1982. Thus, the estimated average 1982 ratio is 1.067 ($1.069 - .002$) for all states except those in the 1982 waiver group. Likewise, for states without a waiver in effect the average 1983 ratio, 1984 ratio, and 1985 ratio are estimated as 1.027, .985, and 1.031. The waiver year = 1 estimate is the estimated deviation of the first waiver year ratio from the ratio for states without a waiver. Thus, the first waiver year resulted in an estimated average increase of 3.2 percentage points in ICF-MR recipients over and above the average change in recipients in the absence of a waiver (regardless of the current year). For example, the average 1982 ratio for states in the '82 waiver group is estimated as $1.099 = 1.069 - .002 + .032$ or a 9.9 percent increase between 1981 and 1982.

Aside from the intercept, the only significant term is current year = 84 in the 45-state regression. Thus, the 1984 ratio is significantly different from the 1981 ratio

Exhibit 5-11

**Cross Sectional Time Series Regressions
for the Number of ICF-MR Recipients**

Dependent Variable: Ratio of Current-Year Recipients to Previous-Year Recipients

Variable	45-State Regression				42-State Regression			
	R-squared = .97				R-squared = .99			
	Estimate	Std. Error	T-Value	P-Value	Estimate	Std. Error	T-Value	P-Value
Intercept (a)	1.069	.025	43.48	.0001	1.027	.018	57.99	.000
Current year = 82	-.002	.032	-.06	.95	.002	.023	.11	.92
Current year = 83	-.040	.035	-1.14	.26	.010	.025	.40	.69
Current year = 84	-.084	.038	-2.24	.03	-.045	.027	-1.69	.09
Current year = 85	-.038	.041	-.93	.36	.008	.029	.28	.78
Waiver year = 1	.032	.033	.96	.34	.039	.024	1.65	.10
Waiver year = 2	.005	.037	.14	.89	-.000	.026	-.01	.99
Waiver year = 3	-.038	.046	-.82	.41	-.031	.033	-.94	.35
Waiver year = 4	-.019	.065	-.29	.78	-.020	.045	-.43	.92

SOURCE: Edited HCFA 2082 Data

NOTE: CT, HI, ME, and ND are omitted in both regressions because they had zero ICF-MR recipients in 1980. AK, AL, and KY are also omitted in the 42-state regression.

a. Intercept term corresponds to Current year = 81.

for states without a waiver in effect during those years (only states in the nonwaiver group were without a waiver in 1984 and all states were without a waiver in 1981). The waiver year effects were not significantly different from zero. However, the estimates of these effects show an interesting pattern. In the first waiver year there is an estimated 3 to 4 percentage point increase. In the second waiver year there is no change. On the third waiver year there is an estimated 3 to 4 percentage point decrease, nullifying the estimated first year increase. Finally, in the fourth waiver year there is an estimated 2 percentage point drop in ICF-MR recipients. These results are consistent with the earlier analyses which found no net effect over the entire waiver period. However, these results suggest the possibility of an initial buildup of ICF-MR recipients followed by a gradual decrease in later waiver years.

Total Recipients Analysis

The ICF-MR recipient analyses above showed no difference in the number of ICF-MR recipients before and after the waiver. This suggests that the total number of recipients of both ICF-MR services and waiver services may have exceeded the expected number of recipients of ICF-MR services had the waiver not been implemented. The analyses below indicate that this was indeed the case. These analyses show that the ratio of the FY 1985 combined number of ICF-MR and waiver recipients to the number of pre-waiver ICF-MR recipients tended to exceed the same ratio for nonwaiver states (for every group).

The estimate of the combined number of recipients are critical to this analysis. Estimates of the total number of combined waiver recipients and ICF-MR recipients for FY 1985 are shown in Exhibit 5-7, column 8. These estimates were calculated by adding the number of FY 1985 waiver recipients Exhibit 5-7, column 5) to the number of FY 1985 ICF-MR recipients Exhibit 5-4 last column) and subtracting the number of waiver recipients taken directly from ICFs Exhibit 5-7, column 7) because waiver recipients taken from ICFs will have already been counted as ICF-MR recipients. The number taken from ICF's was obtained from a survey of waiver programs conducted by La Jolla Management Corporation. This number was not always provided on the survey, and had to be estimated by one of two methods for some states.

The first method was to estimate the number of new FY 1985 waiver recipients by subtracting the number of 1984 waiver recipients from the number of FY 1985 waiver recipients and then assuming that all these recipients were taken directly from ICF-MRs. This is most likely an overestimate for all states with a penetration rate less than one, because not all new recipients are taken from ICFs in those states. But it provides a conservative estimate of the combined number of recipients because it is subtracted from the total.

The second method for estimating the number taken directly from ICFs assumed that the FY 1985 waiver recipients were all taken directly from ICFs at a constant rate. For example, Kansas had 201 waiver recipients in FY 1985, and it was assumed that the waiver program grew at an average rate of 5.15 recipients per month for the 39 months it was in effect through FY 1985. Thus, it was assumed that $12 \times 5.15 = 62$ recipients were added during FY 1985 and that all of these recipients were taken directly ICFs (which is again a conservative assumption for estimating the combined total).

The resulting estimate of total FY 1985 recipients is divided by the number of ICF-MR recipients in the year before the waiver was implemented to form a "waiver period ratio" for each state in each waiver group. These ratios are then compared to the same ratios for states in the nonwaiver group. As for the ICF-MR recipient analyses, the Median Test and the Mann-Whitney Test are then calculated to test whether the waiver states tended to have larger or smaller ratios than the nonwaiver.

The results are summarized in Exhibit 5-12. The null hypotheses, that the change in total number of recipients in waiver states was the same as that in nonwaiver states is rejected by both tests for all three waiver groups. In fact, it is fairly clear that the waiver groups all tended to have a larger increase in total recipients than the nonwaiver group. The median ratio for the '82 waiver group was 1.57, indicating a 57 percent increase between 1981 and 1985, compared to the median ratio of 1.02 for the nonwaiver group. The median ratio for the '83 waiver group was 1.20, indicating a 20 percent increase between 1982 and 1985, compared to the median ratio of 1.00 for the nonwaiver group. Finally, the median ratio for the '84 waiver group was 1.09, compared to a 1.01 for the nonwaiver group, although this 8% difference was not statistically significant.

Exhibit 5-12

Ranked Postwaiver Total Recipient Ratios
Each Waiver Group Combined with the Nonwaiver Group

State	Waiver Group	'85 Recips		State	Waiver Group	'85 Recips	
		Penetration Rate	'81 Recips			Penetration Rate	'83 Recips
AK	Non	.	0.434	VA	Non	.	0.431
VA	Non	.	0.633	NO	Non	.	0.698
NO	Non	.	0.687	HI	Non	.	0.794
HI	Non	.	0.846	MI	Non	.	0.836
MI	Non	.	0.934	NE	Non	.	0.670
LI	Non	.	0.961	HI	'83	1.00	0.915
AR	Non	.	0.977	TX	Non	.	0.953
NE	Non	.	0.978	UA	Non	.	0.966
UA	Non	.	0.984	UT	Non	.	0.994
TX	Non	.	1.031	IN	Non	.	1.000
OK	'82	.	1.061	AR	Non	.	1.006
TN	Non	.	1.071	SC	Non	.	1.038
IN	Non	.	1.088	TN	Non	.	1.065
NY	Non	.	1.097	DE	'83	1.00	1.071
UT	Non	.		DE	'83	1.00	1.071
-----Median-----				-----Median-----			
VT	'82	0.33	1.156	NY	Non	.	1.079
KS	'82	.	1.213	KY	'83	0.19	1.103
LA	'82	0.68	1.252	UT	Non	.	1.105
OK	Non	.	1.306	IA	'83	0.00	1.124
UC	Non	.	1.372	MS	Non	.	1.156
MS	Non	.	1.393	NJ	'83	0.03	1.174
OH	Non	.	1.446	OH	Non	.	1.191
SC	Non	.	1.495	NC	'83	0.19	1.226
MI	'82	0.39	1.565	CU	'83	0.49	1.370
SU	'82	0.40	1.568	OK	Non	.	1.374
LA	'82	0.00	1.653	DC	Non	.	1.504
NV	'82	0.61	2.704	KI	'83	0.08	1.651
FL	'82	.	5.635	AL	'83	0.04	2.065
				NH	'83	0.57	2.312
-----Median-----				-----Median-----			
VT	Non	.	1.133	NY	Non	.	1.133
IN	Non	.	1.111	IN	Non	.	1.111
IA	'84	0.12	1.050	IA	'84	0.12	1.050
IA	Non	.	1.064	IA	Non	.	1.064
UT	Non	.	1.065	UT	Non	.	1.065
OH	Non	.	1.071	OH	Non	.	1.071
NI	'84	0.11	1.087	NI	'84	0.11	1.087
ME	'84	0.24	1.126	ME	'84	0.24	1.126
IL	'84	0.65	1.140	IL	'84	0.65	1.140
MA	'84	.	1.155	MA	'84	.	1.155
DC	Non	.	1.254	DC	Non	.	1.254
WA	'84	.	1.327	WA	'84	.	1.327
WV	'84	1.00	1.377	WV	'84	1.00	1.377
OK	Non	.	1.433	OK	Non	.	1.433

Median Test Chi-square (1 D.F.) = 3.89
p = .031 Reject H0.

Median Test Chi-square (1 D.F.) = 3.89
p = .031 Reject H0.

Median Test Chi-square (1 D.F.) = 6.69
p = .011 Reject H0.

Median Test Chi-square (1 D.F.) = .83
p = .361 Do not reject H0.

Mann-Whitney Test Z-score = 2.64
p = .0081 Reject H0.

Mann-Whitney Test Z-score = 2.93
p = .0031 Reject H0.

SOURCE: Edited MCHA 2082 Data.

NOTES: Not No difference in postwaiver total recipient trend between nonwaiver group and waiver group.

Once again, it may be significant that five out of six of the "direct" states (penetration rate = 1) are below the median ratio. Thus, the waiver in these states may not have led to an overall increase in recipients.

A CSTS regression model could not be fit to these data because reliable estimates of total recipients for years other than FY 1985 could not be obtained from the survey.

The increases in total recipients do not necessarily imply increases in total expenditures. The average cost to treat waiver recipients is considerably less than the cost to treat ICF-MR recipients. Therefore a small decrease in ICF-MR recipients may have offset the cost of any increase caused by the addition of waiver recipients. The analysis of ICF-MR expenditures is the subject of the next section. Unfortunately, we could not analyze total combined ICF-MR cost and waiver cost as we did for recipients in this section, because the data were not available in time for this report.

ICF-MR Expenditure Analysis

This section reports the analysis of expenditure ratios. Ratios are again used to scale each state's expenditure changes to program size and to yield an analysis variable that gives each state equal weight in the analysis, regardless of program size. This analysis parallels the recipient analysis. We begin by testing whether the pre-waiver trend in waiver states was significantly different from the corresponding trend in nonwaiver states. We then test whether the post-waiver trend differed between waiver states and nonwaiver states. If the waiver was effective in reducing ICF-MR utilization then there should have been less expenditure growth in waiver states than in nonwaiver states during the post-waiver years. The Median Test and the Mann-Whitney Test are again used to test the hypothesis of no difference in trends.

The analyses, reported below, do not reject this hypothesis. The cross-sectional time series (CSTS) model used earlier in the recipient analysis is then fit to the expenditure data to study the average effect of each waiver year. Although the effects are not statistically significant, the estimates follow the same pattern as in the recipient model: higher expenditure increases in the first waiver year followed by lower expenditure increases in later waiver years, compared to nonwaiver states.

The results of the test for differences in pre-waiver trends are reported in Exhibit 5-13 and Exhibit 5-14. Exhibit 5-13 shows results for the ratio of expenditures in the year prior to the waiver to expenditures in 1980. Hawaii and Maine had no 1980 ICF-MR expenditures. Exhibit 5-14 shows results using 1981 as a base year so that Hawaii and Maine are included in the analyses. None of the waiver groups had a statistically significant difference in pre-waiver trend than the nonwaiver group, even though the data show an appreciable number of states in the '84 waiver group above the median (i.e., had relatively high percentage increases in expenditures compared to the nonwaiver group). The '84 waiver group had the longest observed pre-waiver period of the waiver groups, and therefore had the greatest opportunity for demonstrating change relative to the nonwaiver group.

Exhibit 5-15 reports the results of the post-waiver analysis. None of the waiver groups had a post-waiver trend that was statistically different from the nonwaiver group. However, the data show a disproportionate share of states in the '82 group above the median, which is opposite the expected direction. The '82 group had the longest observed post-waiver period of the waiver groups, and therefore had the greatest opportunity for showing a change relative to the nonwaiver group.

Exhibit 5-16 shows the results of the CSTS regressions. Connecticut, Hawaii, Maine and North Dakota are excluded from both regressions because they did not have ICF-MR expenditures in 1980. Alabama, Florida, and Washington DC are excluded in the 42-state regression because they were outliers in the 45-state regression. The dependent variable is the previous year-to-current year expenditure ratio; otherwise the model is the same as that described for the recipient analysis. The intercept corresponds to the 1981 to 1980 expenditure ratio. According to both regressions the average percentage increase in expenditures between 1980 and 1981 was about 23 percent. The year-to-year increase for states without a waiver was not as great in the following years, falling to a 10 percent increase in 1984 and 1985. None of the waiver effects were statistically significant, but the estimates of the effects show a pattern similar to those for the recipient data: larger expenditure increases in the first waiver year followed by smaller expenditure increases in the later waiver years compared to states without a waiver in those years.

Ranked Promalver Expenditure Ratios
Each Walver Group Combined with the Nonmalver Group

State	Walver Group	Penetration Rate	'81 Expend -'80 Expend	State	Walver Group	Penetration Rate	'82 Expend -'80 Expend	State	Walver Group	Penetration Rate	'83 Expend -'80 Expend
DC	Non '82	0.40	0.61	DC	Non '83	0.03	0.46	MI	Non	.	1.13
SD	Non	.	0.92	NJ	Non	.	0.98	OA	Non	.	1.20
SC	Non	0.39	0.94	SC	Non	.	1.08	IN	'84	1.00	1.25
MI	'82	.	0.97	MI	Non	.	1.15	WI	'84	1.00	1.27
IL	'84	.	0.99	OK	Non	.	1.18	IN	Non	.	1.30
OK	'84	.	1.05	DE	'83	1.00	1.24	IN	Non	.	1.32
NH	Non	.	1.07	NH	'83	0.57	1.25	DC	Non	.	1.34
NE	Non	.	1.10	UT	Non	.	1.28	OK	Non	.	1.35
LA	'82	0.00	1.15	TN	Non	.	1.30	AK	Non	.	1.36
WA	Non	.	1.16	IA	'83	0.00	1.33	NE	Non	.	1.38
UT	Non	.	1.17	WA	Non	.	1.33	SC	Non	.	1.43
TN	Non	.	1.19	RI	'83	0.04	1.33	UT	Non	.	1.47
AK	Non	.	1.19	AK	Non	.	1.33	NY	Non	.	1.47
MI	Non	.	1.19	MO	Non	.	1.35	MA	'84	.	1.49
TX	Non	0.33	1.20	NE	Non	.	1.40	AR	Non	.	1.50
VT	Non	.	1.20	TX	Non	.	1.42	WV	'84	1.00	1.51
VA	Non	.	1.23	NY	Non	.	1.43	PA	'84	0.42	1.52
IN	Non	.	1.24	IN	Non	.	1.46	MA	Non	.	1.60
MO	Non	.	1.25	CT	Non	.	1.47	TX	Non	.	1.64
VA	Non	.	1.30	VA	Non	.	1.51	PA	Non	.	1.65
WV	'82	0.61	1.30	CO	'83	0.49	1.60	MO	'84	1.00	1.79
MS	Non	.	1.31	KY	'83	0.19	1.60	CT	Non	.	1.88
NY	Non	.	1.33	OH	Non	.	1.62	CT	Non	.	1.91
AK	Non	.	1.39	NC	'83	0.19	1.74	MA	Non	0.11	2.00
CA	'82	0.68	1.59	AK	Non	.	1.82	OH	Non	.	2.02
CT	Non	.	1.75	MS	Non	.	1.91	IL	'84	0.12	2.13
FL	'82	.	2.13	AL	'83	0.04	2.12	IL	Non	0.69	2.28
											2.53

Median Test Chi-square (1 D.F.) = 0.0
p = 1.001 Do not reject H₀.

Median Test Chi-square (1 D.F.) = 0.0
p = 0.241 Do not reject H₀.

Mann-Whitney Test Z-score = -0.57
p = 0.571 Do not reject H₀.

Median Test Chi-square (1 D.F.) = 0.0
p = 1.001 Do not reject H₀.

Mann-Whitney Test Z-score = 1.29
p = 0.211 Do not reject H₀.

SOURCE: Edited MESA 2082 Data.

NOTE: MO: No difference in promalver IUP-HR expenditure trend between nonmalver group and malver group.

Ranked ICF-PM Prewaiver Expenditure Ratios (1991 Denominator)
 '83 Waiver and '84 Waiver States Combined with Nonwaiver States

State	Waiver Group	'82 Expend ----- '80 Expend	State	Waiver Group	'83 Expend ----- '80 Expend
DC	Non	0.77	AK	Non	0.83
CT	Non	0.84	HI	Non	0.93
UT	Non	0.93	WI	'84	0.93
AK	Non	0.96	GA	Non	1.03
HI	Non	1.07	IN	Non	1.05
NV	Non	1.08	UK	Non	1.09
KI	'83	1.08	CT	Non	1.09
MU	Non	1.09	NY	Non	1.10
DE	'83	1.09	IN	Non	1.11
UT	Non	1.10	MD	'84	1.13
TM	Non	1.11	UT	Non	1.23
MA	'93	1.12	NE	Non	1.23
AR	Non	1.12	WV	'84	1.26
NY	'83	1.12	AR	Non	1.26
GA	Non	1.13	VA	Non	1.27
		-----Median-----			-----Median-----
AK	Non	1.18	WA	'84	1.28
SC	Non	1.15	TX	Non	1.36
VA	Non	1.16	IL	'84	1.37
IA	'83	1.16	MI	'84	1.40
HI	'83	1.16	PA	'84	1.48
NJ	'83	1.16	MU	Non	1.51
IN	Non	1.16	SC	Non	1.54
TX	Non	1.17	SD	'84	1.55
NE	Non	1.27	ID	'84	1.56
NC	'83	1.27	MA	'84	1.57
CU	'83	1.28	MM	'84	1.57
MS	Non	1.43	MS	Non	1.74
OH	Non	1.52	OH	Non	1.89
AL	Non	1.63	DC	Non	2.19
		-----Median-----			-----Median-----
			ME	'84	2.28

Median Test Chi-square (1 D.F.) = 2.81
 $p = .091$ Do not reject H_0 .

Mann-Whitney Test Z-score = 1.57
 $p = .121$ Do not reject H_0 .

Median Test Chi-square (1 D.F.) = 0.16
 $p = .691$ Do not reject H_0 .

Mann-Whitney Test Z-score = 1.29
 $p = .201$ Do not reject H_0 .

SOURCE: Edited HCUFA 2082 Data.

NOTE: H0: No difference in prewaiver ICF-PM expenditure trend between nonwaiver group and waiver group.

Kanted Fosterliver Expenditure Ratios											
Each Walver Group Combined with the Nuneliver Group						Each Walver Group Combined with the Nuneliver Group					
State	Walver Group	Penetra- tion Rate	65 Expend ----- 61 Expend	State	Walver Group	Penetra- tion Rate	65 Expend ----- 62 Expend	State	Walver Group	Penetra- tion Rate	65 Expend ----- 63 Expend
MI	0	.	1.01	MI	0	1.00	0.61	MI	0	.	0.71
AK	0	.	1.05	AK	0	.	0.92	PA	0	1.00	0.74
VI	0	.	1.13	HI	0	.	1.05	HI	0	1.00	1.02
TM	0	0.33	1.21	IN	0	.	1.08	TX	0	.	1.02
CA	0	.	1.23	TH	0	.	1.11	UT	0	0.12	1.02
IA	0	0.68	1.28	NE	0	.	1.13	IL	0	.	1.05
IT	0	.	1.24	NE	0	.	1.16	IS	0	.	1.04
IN	0	.	1.30	VA	0	.	1.17	VA	0	.	1.04
NY	0	.	1.30	IA	0	0.00	1.17	HI	0	.	1.04
NY	0	.	1.35	UT	0	.	1.17	TH	0	.	1.10
OR	0	.	1.35	TX	0	.	1.20	AR	0	0.42	1.18
OR	0	.	1.37	CU	0	0.49	1.20	PA	0	.	1.15
MO	0	.	1.38	CA	0	0.15	1.21	NE	0	.	1.14
IA	0	.	1.39	KY	0	.	1.21	ME	0	0.24	1.14
TX	0	.	1.39	NY	0	.	1.21	NY	0	.	1.18
AK	0	.	1.39	DE	0	1.00	1.22	SC	0	.	1.19
CT	0	.	1.43	AR	0	.	1.24	MO	0	1.00	1.20
KS	0	.	1.43	MS	0	.	1.25	IL	0	0.65	1.21
NE	0	.	1.44	NJ	0	0.03	1.27	WA	0	.	1.21
SD	0	0.40	1.47	MO	0	.	1.27	IN	0	.	1.24
OR	0	.	1.58	RI	0	0.08	1.41	AK	0	.	1.24
LA	0	0.00	1.81	NC	0	0.19	1.45	MA	0	.	1.24
IS	0	.	1.82	SC	0	.	1.59	CT	0	.	1.31
SC	0	.	1.83	OH	0	.	1.65	NY	0	0.11	1.33
SC	0	.	1.83	OH	0	.	1.66	NY	0	.	1.33
NY	0	0.61	1.83	OK	0	.	1.66	OH	0	.	1.34
MT	0	0.39	1.85	AL	0	0.04	1.68	CA	0	.	1.44
UT	0	.	2.51	CT	0	0.57	1.70	OK	0	.	1.44
UC	0	.	3.73	MA	0	.	2.35	DC	0	.	1.70
FL	0	.	4.04	DC	0	.	4.87				
Do not reject H0.				Do not reject H0.				Do not reject H0.			
Median Test Chi-square (1 D.F.) = 0.16 p = .691 Do not reject H0.				Median Test Chi-square (1 D.F.) = 0.16 p = .691 Do not reject H0.				Median Test Chi-square (1 D.F.) = 0.02 p = .871 Do not reject H0.			
Mann-Whitney Test Z-score = 1.03 p = .301 Do not reject H0.				Mann-Whitney Test Z-score = 0.67 p = .501 Do not reject H0.				Mann-Whitney Test Z-score = 0.04 p = .961 Do not reject H0.			

Source: Edited HFA 2082 Date:

Comment: 54104 HXFA 2082 Date: 08-23-88 and 08-24-88
08-25-88 and 08-26-88

Exhibit 5-16

**Cross Sectional Time Series Regressions
for ICF-MR Expenditures**

Dependent Variable: Ratio of Current-Year Expenditure to Previous-Year Expenditures

Variable	⁶ 45-State Regression				³ 42-State Regression			
	R-squared = .97				R-squared = .98			
	Estimate	Std. Error	T-Value	P-Value	Estimate	Std. Error	T-Value	P-Value
Intercept (a)	1.231	.031	40.01	.0001	1.224	.026	47.51	.00
Current year = 82	-.049	.041	-1.19	.24	-.056	.037	-1.52	.13
Current year = 83	-.058	.044	-1.33	.19	-.127	.038	-3.34	.00
Current year = 84	-.126	.047	-2.68	.01	-.157	.040	-3.89	.00
Current year = 85	-.088	.051	-1.71	.09	-.114	.042	-2.69	.01
Waiver year = 1	.017	.043	.40	.69	.025	.033	.76	.45
Waiver year = 2	-.033	.046	-.73	.46	-.012	.035	-.34	.73
Waiver year = 3	.036	.056	.64	.53	-.030	.044	-.69	.49
Waiver year = 4	-.045	.080	-.57	.57	-.004	.062	-.06	.95

SOURCE: Edited HCFA 2082 Data

NOTE: CT, HI, ME, and ND are omitted in both regressions because they had zero ICF-MR recipients in 1980. AL, DC, and FL are also omitted in the 42-state regression.

a. Intercept term corresponds to Current year = 81.

APPENDIX 5-A
A TECHNICAL DISCUSSION OF THE COSTS REGRESSION FOR
ICF-MR RECIPIENTS

The regression model is

$$\begin{aligned} R(i,y) = & a(1) + a(2)*D82(i,y) + a(3)*D83(i,y) \\ & +a(4)*D84(i,y) + a(5)*D85(i,y) +b(i)*W1(i,y) \\ & +b(2)*W2(i,y) + b(3)*W3(i,y) +b(4)*(i,y) \\ & +u(i,y) \quad i=1,...,N ; y=81,82,83,84,85. \end{aligned}$$

The index i runs from 1 to N , the number of states. The year dummy variables are $D82(i,y)$, $D83(i,y)$, $D84(i,y)$ and $D85(i,y)$. If the year index has value $y = 83$, then $D83(i,83) = 1$ and the other year dummies are zero. The waiver dummy variables are $W1(i,y)$, $W2(i,y)$, $W3(i,y)$, $W4(i,y)$. If $y = 83$ and state i is in the 1982 group then $W2(i,83) = 1$ and the other waiver dummies are zero because the state is in its second waiver year. The parameters to be estimated are $a(1)$, $a(2)$, $a(3)$, $a(4)$, $a(5)$, $b(1)$, $b(2)$, $b(3)$, and $b(4)$. The intercept parameter $a(1)$ is the average ratio of 1981 recipients to 1980 recipients over all states without a waiver in effect during 1981 (all states in the analysis because none of the states had a waiver in 1981). The parameters $a(2)$, $a(3)$, $a(4)$, and $a(5)$ correspond to the difference between the average 81 ratio and respectively, the average 82 ratio, 83 ratio, 84 ratio, and 85 ratio for states without a waiver in effect during that year. For example, the average 82 ratio is $a(1) + a(2)$ for a state without a waiver in effect during 1982. The parameters $b(1)$, $b(2)$, $b(3)$, and $b(4)$ are the average changes in the ratio (in any year) during respective waiver years 1,2,3,and 4. Thus for the 1982 waiver group, the average 82 ratio is $a(1) + a(2) + b(1)$, because 1982 is the first waiver year in 1982 for the '82 waiver states. Similarly, for the '82 waiver group, the average 84 ratio is $a(1) + a(4) + b(3)$. finally $U(i,y)$ is the stochastic error term for state i in year y .

We assumed that the error term were not correlated across states but were serially correlated over time within a state. We modeled the error terms as a first-order autoregressive process:

$$U(i,y) = r(i)U(i,y-1) + E(i,y).$$

The $E(i,y)$ are assumed to be independently and normally distributed with zero mean and constant variance. The term $r(i)$ is the first-order autoregressive parameter for state i . This model was chosen for its simplicity and plausibility. There are too few observations to model correlation both between states and within states. Therefore, we modeled within-state correlation because it would seem to pose the most serious threat to model validity.

We estimated this model by the usual two-step procedure (Kmenta, 1981, pp. 509-512). The first step was to estimate the regression model by ordinary least squares, as if the $U(i,y)$ satisfied the usual regression assumptions.

The residuals from this model were then used to estimate the autoregressive parameters $r(i)$:

$$r(i) = \frac{\sum_{y=82}^{85} [(R(i,y) - \hat{R}(i,y))][R(i,y-1) - \hat{R}(i,y-1)]}{\sum_{y=82}^{85} [R(i,y-1) - \hat{R}(i,y-1)]^2}$$

A hat denotes an estimated value. A common procedure is to pool these estimates to obtain a common value r and set $r(i) = r$ for all states. But the sample autocorrelations did not appear to support the hypothesis of a single value (see table 5-A-1). The second step was to (asymptotically) remove the autoregressive character of data by the usual transformations:

$$X^*(i,81) = X(i,81) - 1-r(i)$$

$$X^*(i,y) = X(i,y) - (1-r(i)) X(i,y-1) \quad y=82,\dots,85;$$

Where X represents the variables R , $D82$, $D83$, $D84$, $D85$, $W1$, $W2$, $W3$, and $W4$. These transformed variables were then substituted for the original regression variables and the parameters were finally estimated by the method of ordinary least squares. Under

TABLE 5-A-1

**Sample Autocorrelation Coefficients
in the CSTS Regression for ICF-MR Recipients**

<u>State</u>	<u>r(i)</u>	<u>State</u>	<u>r(i)</u>
AK	0.08	NE	-0.22
AL	-0.13	NH	-0.05
AR	0.28	NJ	0.68
CA	0.26	NM	-0.35
CO	0.09	NV	0.08
DC	0.32	NY	0.25
DE	0.30	OH	0.68
FL	0.79	OK	0.21
GA	0.72	OR	-0.39
IA	0.67	PA	0.96
ID	-0.28	RI	0.19
IL	-0.09	SC	-0.39
IN	-0.16	SD	0.37
KS	0.08	TN	-0.18
KY	0.11	TX	0.34
LA	-0.41	UT	0.42
MA	-0.27	VA	0.38
MD	0.63	VT	0.54
MI	0.61	WA	-0.58
MN	0.47	WI	-0.65
MO	-0.95	WV	-0.22
MS	0.53		
MT	0.04		
NC	0.33		

the model, the residuals from this second regression asymptotically satisfy the usual regression assumptions.

ENDNOTES

1. La Jolla Management Corporation, Medicaid Program Evaluation Monograph, "Impacts of Home and Community Care Waivers on Medicaid Nursing Home Use and Expenditures," (draft) June 1986.

CHAPTER SIX

EVALUATION OF CALIFORNIA MULTIPURPOSE SENIOR SERVICES PROGRAM

This chapter presents additional evaluation perspectives based on a case study of the large aged and disabled waiver service program in California. The purpose of the study is to gain in-depth knowledge of how waiver programs operate and to analyze person-based waiver recipient data with which to address evaluation issues related to recipient characteristics, client targeting effectiveness, service efficacy, cost-effectiveness, and quality of care. This waiver program was selected for analysis because MSSP is a large, well established program; it represents learning and experience in running a waiver program --because it was a demonstration program before it became a waiver program; and because the State was willing to participate by making its data readily available.

PURPOSE AND SCOPE

This section is focused on one waiver program - California's Multipurpose Senior Service Project. While the overall evaluation addresses the six basic evaluation issues discussed in Chapter Two, the MSSP analysis is less ambitious in scope. The original research that forms the core of this analysis is focused on four central questions, defined as follows:

1. What percent of MSSP enrollees would have gone to the nursing home absent the waiver? (Targeting Efficiency). This is the probability that someone in a population very similar to that enrolled in the MSSP program, but which did not receive waiver services, would enter a nursing home in one year. This measures how well the program's enrollment process works in identifying persons who are at risk for going to a nursing home in the near future.
2. Did MSSP services deflect or defer these people from the nursing home? (Service Efficacy). This is the difference between the probability of nursing home use for someone who received the waiver services and the probability of nursing home use for a similar individual who did not receive these services. This measures how well the program's services work to change the nursing home outcome for those enrollees who were nursing home bound.
3. What is the net cost of MSSP? (Overall Effectiveness). This is the combined effect of targeting efficiency and service efficacy, and measures the overall performance of the program along the cost dimension. This question tests the ability of the program to enroll people who are nursing

home bound and to change this outcome for these people. Of course, persons who are not nursing home bound cannot be kept from nursing homes and persons who are nursing home bound may or may not be diverted (for some time) from nursing homes by the services provided by the program.

4. What type of person should a waiver program like MSSP target toward? That is, are certain characteristics of an enrollee predictive of success for the program? Was MSSP more effective in delaying nursing home entry for some types of clients than for others?

WAIVER PROGRAM DESCRIPTION

The California Multipurpose Senior Services Program (MSSP) received its Section 2176 waiver on July 1, 1983. However, this program began operation as a demonstration project, and has been serving clients since April, 1980. The purpose of the demonstration was to show that home and community based services can be substituted for nursing home care and that, in consequence, the net cost of MSSP's services can be offset, i.e. the program is budget neutral. The evaluation of the program conducted by researchers at The University of California, Berkeley found that, while this substitution was possible, the magnitude of this effect was not large enough to make the program budget neutral.¹

However, budget neutrality might also be conceptualized as potential program savings if targeting (enrolling clients who, but for the services, would go to a nursing home) and the effectiveness of the home and community based services as substitutes for nursing home care were perfect. In 1982, the Torres-Felando Long Term Care Reform Act (AB 2860, Chapter 1453) called for the continuation of MSSP as an ongoing program if the MSSP proved cost effective and if the State could obtain a 2176 waiver.² The demonstration phase ended in June, 1983, the waiver was obtained, and the program is on-going. Thus, the State chose the latter interpretation of the budget neutrality concept.³

However, the program learned from the evaluation of the waiver and this lesson was incorporated into the design of the waiver program. Specifically, as compared to the demonstration, the current program uses more stringent criteria for enrollment. The enrollment criteria were tightened in order to improve client targeting, specifically, by requiring that a potential client must be nursing home certified.

Improved targeting was the main change to the program suggested by the internal evaluation referenced above. Other than this change, the waiver and demonstration programs are very similar.

The Multipurpose Senior Services Program is intended to be the model for the reform of long term care service delivery in California.⁴ Its purpose is to provide case management and other home and community-based services to an impaired elderly population. These services are intended to be substitutes for nursing home care. The program is a service delivery and financing mechanism, while the demonstration was an attempt to learn to provide these services in a more cost effective fashion. In FY 1985 the program served 3,944 people.⁵

MSSP is administered by the California Health and Welfare Agency's Department of Aging. It operates at eight separate locations selected to represent the market conditions in the State as a whole. That is, site selection was based on the supply of long term, acute, and community services available at the site, and the eight sites are intended to reflect the ethnic and cultural diversity of California's population.

Client Characteristics

Under the terms of MSSP's waiver, potential clients must meet three criteria in order to be eligible for the program. These are:

- . Age 65 or older
- . MediCal eligible
- . Certifiable for SNF or ICF level care.

Providers are responsible for requesting nursing home level of care certification. This is done through a treatment authorization request -- in California a fairly open ended form. For MSSP, the certifiability determination is made by the local agency responsible for administering the program, one of the eight sites that comprise MSSP. The sites provide case management and purchase other services subject to the constraint that the cost of these services , including case management not exceed the cost of nursing home care (except for short periods of time).

It is important to note that, while someone may be certifiable for SNF or ICF level care, this certification alone does not mean that the person will actually enter a SNF or ICF. Since people vary in their response to an impairment, threshold criteria are set low enough to protect people who cannot maintain themselves in the community. This protects the State from charges that someone was injured by failure to pay for nursing home services. However, this also implies that the fact that someone can be defined as nursing home certifiable is not likely to be a good predictor of the probability of future nursing home use.

Clients are obtained from several sources. The program has an outreach program for hospitals and long term care institutions. Clients may be referred by an institution or their physician, or they or their families may apply directly. Potential clients are screened as a part of the case management process. Applicants who are not certifiable and those whose ongoing treatment cost would exceed the cost of institutional care are excluded from the program. At this time the care plan is also developed. A care plan requires the concurrence of the client's physician. It covers the complete range of medical and social services.

Finally, it is of interest to examine the characteristics of the people enrolled in MSSP. Based on statistics derived from the 1985 La Jolla Survey of waiver programs, MSSP is, as intended, enrolling a functionally impaired, sick and old population. Of the 3,110 people enrolled on September 30, 1985, about 2/3 are female, 770 enrollees were older than 85, and 1,350 were between 75 and 84 years old. Only 534 were married at that time, most (2,451) were divorced, widowed or separated. These MSSP clients are impaired on both the ADL and IADL scales; and 51.5% have bowel or bladder incontinence. They are also sick, as the mean number of chronic diseases per client is about three. The average age of an MSSP client is 80.

Waiver Services

MSSP as an intervention consists of case management and purchased waived services, as required by the client's condition. Case management involves the coordination and supervision of the services (medical and non-medical) provided to a client. A case manager should be aware of the services available in a particular community and know how to gain access to these services. For MSSP, the case

management team is able to purchase waived services if these services cannot be obtained through other funding sources e.g. Title XX. Under limited circumstances, the team can use general revenue funds to purchase special services on a one time basis.

The case management team prepares a plan for the services required by an individual and coordinates service delivery. This plan must be approved by the client's physician. For MSSP, the case management team is also responsible for keeping the cost of the services below a pre-determined "cap" amount. The cap amount is ninety percent of the cost of institutional care (\$1249 per month for FY 85), and it applies to waiver services, existing Title XX services, existing Title XIX services, existing Title III services, SSI/SSP, and the special services funded through State revenues. This cap may be exceeded under special circumstances, but never by more than 120% of the cost of institutional care.

The case management team consists of a counselor and a health practitioner. The only health care service provided by the team is counselling. Case management is the only service actually provided by the site. The team is expected to use the client's informal care resources to the greatest extent possible. Next, services available through conventional public funding are used. Only if these resources are insufficient, will the team authorize the purchase of waived services. The client is supposed to be reassessed every six months, and, in fact, this is the average time between assessments. The time between assessments, however, varies between two months and one year. As a result of the re-assessment the care plan might be modified, or the client might be discharged from the program or institutionalized.

The 2176 waiver for MSSP allows the State agency to purchase certain services in addition to those normally covered by Title XIX (Medi-Cal). These services are:

- **Case Management** - counselling, planning and arranging for services. This is the only service provided directly by the MSSP sites.
- **Adult Social Day Care** - These are daytime social, recreational and nutritional services.
- **Housing Assistance** - This provides minor home repairs or modifications as needed to accommodate physical limitations of clients.

- **In-Home Supportive Services** - These provide or supplement basic household and personal care services.
- **Respite Care** - Provides occasional client supervision in order to provide some relief to care givers.
- **Transportation** - to places where services are delivered.
- **Meal Services** - This category includes meals provided in home or congregate settings.
- **Protective Services** - Protects those who are abused or exploited.
- **Special Communication** - This includes providing interpreters, translators, and special electronic communication devices. It does not include normal telephone service.

Service Costs

In this section the costs of the MSSP program are reviewed. For clarity, it is useful to separate service costs into waiver and non-waiver services and to separately identify program overhead costs. The cost experience for MSSP for the study period, California FY 1984 (July 1, 1983 - June 30, 1984), is presented in Exhibit 6-1. It is important to note that these costs are for the first program year. Certain fixed costs are incurred by the MSSP sites irrespective of the level of program enrollment. This period was selected because it is the time for which data for a control group (necessary for analyses reported later) was available. Since enrollments at the sites increased during the first and second years of program operation, fixed costs from later years are lower on a per recipient basis.

These figures are monthly averages for the 2,107 recipients in FY 1984. As one might expect, the most expensive waived service is case management -- a service received by all waiver program enrollees. Case management is followed in importance by In Home Supportive Services and Transportation. Of greatest interest, however, is the level of overhead charges, more than half of the average cost per person per month. As noted above the level of overhead cost is partly a function of the fact that these data reflect the startup year for the program, but more recent (FY 1986) data provided by the MSSP sites indicates that site and State overhead costs remain at about the level of service costs.⁶ The largest overhead component is site overhead. The State's computer is absorbing more money than any service except

EXHIBIT 6-1

Average Cost Per Person Per Month for Waivered Services
California FY 1984

WAIVER SERVICES

Case Management	\$102.00	
Adult Day Care	\$ 2.13	
Housing Assistance	\$ 2.85	
In Home Support	\$ 33.17	
Respite Care	\$.44	
Transportation	\$ 11.93	
Meal Services	\$ 1.29	
Protective Services	\$ 3.68	
Special Communication	<u>\$ 1.51</u>	
Sub-total, Waiver Services		\$159.00

OVERHEAD

Site	\$ 97.00	
State	\$ 18.00	
State Computer	<u>\$ 53.00</u>	
Sub Total, Waiver Overhead		<u>\$168.00</u>

TOTAL		\$327.00
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Source: Draft HCFA 372 Report, 1986; California Legislative
Report, 1984.

case management. This seems to indicate that California is using waiver money, at least in part, to finance its own data processing overhead. These figures are important because they can be used to define the number of people that the program must divert from nursing homes in order to meet its budget neutrality objective. (Using more recent data would not significantly change this percent and would not effect the conclusions, reported below, at all. Cost figures for FY 1984 are reported in order to remain consistent with the person level analysis of service use, reported below).

Nursing home care in California costs \$1020 per person per month in FY 1984. For each person that the waived services divert from a nursing home the program saves \$693 per month (\$1020 - \$327). Thus, MSSP will be able to achieve budget neutrality if it is able to divert enough of its enrollees to offset the cost of providing services to those who would not have gone to a nursing home in any event and those who went to nursing homes despite the fact that they received these waived services. Specifically, the savings from someone kept from a nursing home are adequate to pay for services for 2.1 people who either would not have gone or who went to nursing homes in any event. Thus, MSSP must divert from nursing homes one of 3.1 enrollees or 32%. Diverting someone from a nursing home is a two stage process. First, people must be screened to identify those who are at high risk of nursing home use. Second, high risk individuals must be kept out of nursing homes by the services provided by the program. In the next section the ability of the program to achieve budget neutrality, i.e. to divert 32% of its enrollees from nursing homes is assessed.

ANALYTICAL METHODS AND DATA

This section presents the data and the analytic methods used for the evaluation of MSSP. The purpose of the analysis is to determine if MSSP was able to keep at least 31% of its enrollees from nursing homes. This is done by comparing the nursing home use of persons who received waived services with the nursing home use of those who did not receive these services. The research design is quali-experimental, however, because this comparison is done only after certain statistical adjustments have been made.

We cannot simply use the percent of MSSP enrollees who entered nursing homes as a basis for comparison because the purpose of MSSP is to effect this probability. Instead, a comparison group is required. Before describing the adjustments needed to ensure that the estimate of the ability of MSSP to deflect its enrollees from nursing homes it is useful to describe the comparison group for this research design. Since MSSP is no longer a demonstration, it no longer collects information for the control group created for the demonstration evaluation. However, it is possible to follow the demonstration control group for one year past the end of the demonstration, i.e. from July 1, 1983 to June 30, 1984.

The MSSP program began as a demonstration and as a part of this activity, created a non-random comparison group. This comparison group was not followed after the demonstration phase ended in July, 1983. However, the comparison group was assessed as a normal part of the demonstration research protocol shortly before the end of the demonstration. In addition, service use for these individuals is available from Medicare and MediCal claims tapes for the year following the end of the demonstration. Thus, by following these people through their claims, a comparison group consisting of 253 people can be created. The assessment information for these people stops in July, 1983, and one would expect that this information would remain a useful description of their characteristics for at least one year. Beyond one year, the 1983 assessment data would be less valuable since the characteristics of these people will change over time. Thus, our comparison group limits the comparison of service use with and without the waiver to the first waiver year, i.e. to FY 1984.

Data

The data available to this evaluation were obtained from MSSP and the University of California. The same kinds of data were collected for the control, and client groups. The data sources are:

- . **The Assessment Instrument** - This is the tool used by the program to determine if someone is at risk for nursing home use and to define the services needed. This is the source for demographic, health, functional status, mental acuity, and living arrangement information. For clients, this information is collected at enrollment. For the control group, this information was collected during the six months prior to the program's transition from a demonstration to a waiver. Since the client information

is collected by the sites with the knowledge that it will be used by the State to evaluate the sites' success in enrolling high risk persons, the sites have an incentive to overstate frailty. This potential bias will tend to improve the evaluation of the program's performance, but the extent of this bias, if any, is not known.

. **The Timeline File** - The evaluation issue for MSSP involves the program's ability to keep people out of nursing homes. Thus, the exact date that someone entered a nursing home is of particular interest for this study. To avoid potential errors in the estimates, it is also necessary to know when someone died (and, therefore, couldn't enter a nursing home), when someone left the study e.g. moved (and couldn't be observed entering a nursing home). In addition, since hospital use is a potential source of savings for the program, dates of hospital admissions for clients and controls are important. The data used to measure each of these changes (called transitions) for a person is collected for MSSP by researchers at the University of California as a part of their on-going evaluation of the program. They obtained the nursing home admission and discharge data from MediCal bill files, the date of death data from county health departments, the hospital admission and discharge dates from the Medicare fiscal intermediary in California, and the "lost to followup" date from the site. The University of California evaluation also required these dates as a critical part of their research design and therefore, a great deal of effort has gone into ensuring that these data are as accurate as possible.

Overview of the Analytic Strategy

The purpose of this analysis is to estimate the net cost to Medicaid of the MSSP waiver program in California. The program provides home and community based services to its enrollees and incurs costs in so doing. However, it is hoped that these costs may be offset in whole or in part if these home and community based services act to reduce the enrollees use of other services. More specifically, these services could be substitutes for nursing home services, they could be substitutes for hospital services, they could delay entry to nursing homes, and /or the case manager could, in effect, substitute waived services or nursing home days for hospital days. Since home and community based services are less expensive than institutional services, these substitutions would offset some or all of the costs of the program.

In order to know if such substitution has occurred, one needs to know what services MSSP clients would have used had they not been enrolled in the program. This objective can be achieved by comparing service use for clients to service use for individuals who are otherwise identical to the clients except that they did not receive program services. This is the comparison illustrated at the top of Exhibit 6-2,

representing the comparison that could be made if the research design were truly experimental. A control group drawn at random from the same population as the waiver clients would meet this ideal design, as would matched pairs of specially selected individuals, but this kind of matched or random control group was not available for this analysis. Instead, the comparison group from the earlier demonstration period, followed forward for one year was available, but this group cannot be assumed to match the client group in terms of the factors that influence nursing home use. This is the first threat to the validity of a simple comparison.

The second threat to the validity of a simple comparison involves the fact that the time that an individual is observed before he or she makes a given transition (goes to a nursing home, goes home from a nursing home, goes to a hospital, dies, etc.) will be systematically different for clients and the comparison group. If the number of e.g. nursing home admissions were simply counted for clients and controls, and given that the control group is observed for a full year while clients are enrolled during course of the year, one would tend to observe more nursing home admissions for the control group simply because they were observed for a longer time, on average. Likewise, when people die, they cannot enter nursing homes and a comparison of the experiences of clients and controls needs to adjust for differences in death rates to allow a valid comparison of service use to be made. Finally, since one intended effect of MSSP's services is to delay nursing home use, the service use comparison must include the concept of delay. That is, if the program begins in July, then a nursing home admission in August must be counted differently than a nursing home admission the following May. Accounting for exposure time and the duration of a persons stay in various settings (including at home) is critical if valid service use comparisons are to be made, and the failure to adjust for these differences involving time and duration would be the second threat to the validity of a simple comparison.

The research design used to accomplish the objective, a simple comparison of consists of two main steps, corresponding to the two threats to validity identified above. The first is to control for differences between experimental and control groups in the risk factors that influence nursing home use. Since multiple factors act service use between those who received MSSP services and those who did not,

in concert to influence nursing home use, this implies that a multi-variate approach to this analysis is necessary. This is done by creating types of people such that individuals in each type are very similar in terms of these multiple risk factors. It is then legitimate to compare service use within each of these multi-variate types. The technique used to create these groups is called Grade of Membership (GOM).

In the second step, standard cause elimination lifetable techniques are used to actually compare the outcomes -- differences in nursing home utilization between clients and controls -- but this comparison is done only within a particular multi-variate type. Since persons in each type are very similar in terms of the factors that influence nursing home use, the first threat to validity is eliminated. (The adequacy of this within-type method of control is testable and was tested. The results indicate that the risk factor data from MSSP are rich enough to provide adequate control.) The lifetable method of comparison is used because it can control the second threat to the validity of a simple comparison -- differences in exposure time which would otherwise bias the results. Lifetable techniques are commonly part of true experimental designs because some differences in exposure time between treatments and controls are difficult to avoid, if only because individuals die at different times. Thus, the lifetable model is a standard technique used to eliminate the time related second threat to validity.

These steps are summarized in Figure 6-1. The first set of boxes represents the objective - a direct comparison of service use between clients and controls. The second pair of boxes represents the statistical technique, called Grade of Membership, which controls the first threat to the validity of a simple comparison, differences between clients and controls in the factors that influence nursing home use. The third pair of boxes represents the second threat to validity, differences in exposure time, and the role of the lifetable model in controlling this problem. Before describing the Grade of Membership and Lifetable models and presenting the findings of this study, it is useful to first describe the unit of analysis for this study. The unit of analysis is based on the concept of an episode of care, not an individual for one year. The episode concept is operationalized using the data on transitions described above.

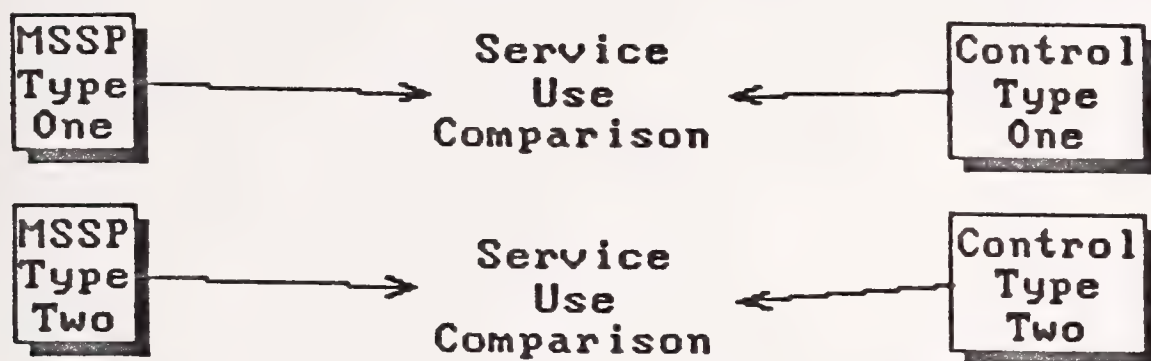
Figure 6-1 MSSP Research Design Schematic

Purpose: Compare service use between MSSP enrollees and a control group



Problem One: Clients and controls differ in the factors that influence service use.

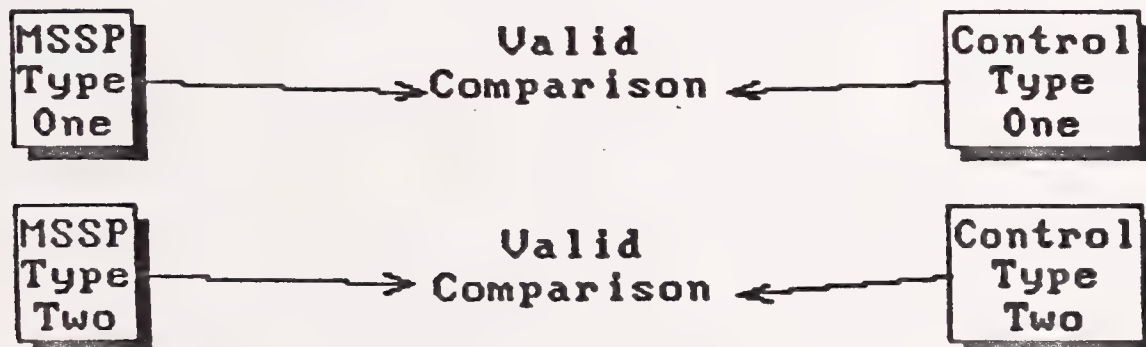
Solution: Do comparisons only within groups that are very similar in terms of these factors.



These groups are defined by the GOM Model.

Problem Two: Clients and controls are observed for different times — due to deaths, moved, etc.

Solution: Adjust so observation times are equal using the cause elimination lifetable model.



Specifically, a transition occurs when someone moves from (e.g.) their home to a nursing home, home to hospital, hospital to nursing home, dies in a nursing home, dies at home, etc.. We can observe someone who began in the demonstration and carried over to the waiver for up to two years. During this time numerous transitions in various combinations could (and did) occur. Clearly, it would be difficult to model all possible transition paths over time. In order to make this situation tractable for analysis, the unit chosen for this analysis is the time from a beginning state to any transition. For example, consider an individual who begins at home (with an assessment), goes to the hospital for five days, returns home and goes to a nursing home six weeks later. This person would contribute three observations to this analysis, one for home to hospital, one for hospital to home and one for home to nursing home. This strategy allows complex patterns of events to be analyzed and maximizes the power of the data in the sense that one individual can contribute several observations to the analysis. The 2,107 clients and the 253 controls (combined) resulted in 3,831 episodes of care for this analysis.

Grade of Membership -- A Non-Technical Overview.⁷

The first problem to be faced in this analysis, then, is that the comparison group and the waiver group are both different along the multiple dimensions of health status, functional ability, demographics, and living arrangements. In addition, each of these dimensions may be measured by several variables. GOM will be used to create "pure type" groups from data reflecting each of these dimensions and simultaneously to assign Grade of Membership scores to each person for each of the resultant groups (pure types).

This technique controls for differences between the clients and controls along all of these dimensions. Specifically, assume that one pure type is very impaired and fairly likely to require nursing home services. Some persons in each of the population groups (clients and controls) will be represented in this category, but, because the control group is healthier as a group than the intervention (waiver) group, fewer of the control group will be classified as very like this type. Nonetheless, since some people in both the intervention and control groups will belong to this very frail type, at least in part, then the probability and the time path to nursing home can be known for both.

Since this can be accomplished for each pure type, and, since any individual is defined in terms of similarity to each of the pure types, the likely effect of the waived services on any individual with any combination of health or functional status problems will be known. In a similar vein, if an individual has particular characteristics at one time, such as at an assessment, then these characteristics will result in a pattern of grade of membership scores for that individual at that time. At each new assessment the individual will be different, if only because he is older. These differences will result in a new set of grade of membership scores at each new assessment.

Each pure type will have its own probability of nursing home use. In order to achieve the maximum potential savings one should target toward the pure type with the highest probability of nursing home use. The targeting effectiveness of MSSP is obtained from the blend of its clients among the pure types. Differences between MSSP clients and controls will be reflected in differences in proportions in each of the pure types.

To summarize briefly, GOM analysis has several properties that are particularly important in controlling for differences between individuals in the client and control groups. This is because, simultaneous with the determination of the profile of characteristics that describes a pure type in a classification system, the GOM model determines the degree to which each individual is described by that profile. Each client may belong, in part, to several groups. A case may be 90% like group one and 10% like group three. These percents are the grades of membership of that individual in the pure type groups. This means that the model can explicitly represent the heterogeneity of individuals within a discrete classification scheme (the pure types).

A Non-technical Description of the Life Table Technique.

Among the outputs of the GOM model are estimates of the probability of a particular transition for the entire population, and for clients and controls, estimated separately. These probabilities were estimated for transitions from: community, nursing home, and hospital; to: nursing home, permanent nursing home, hospital, death, community, any new assessment, and end of study/lost to follow up. These are raw

estimates. A raw estimate of the probability of, for example, permanent nursing home is confounded by the fact that, for some observations, death (or another of the absorbing states) intervened before this transition would otherwise have occurred. Since this confounding may be different for clients and controls, it is a source of bias in the raw estimates. This phenomena is called censoring.

The Purpose of a Cause Elimination Life Table.

The purpose of a cause elimination life table is to statistically eliminate the effect of censoring from estimates of transition times and rates for states of particular interest--in this case, hospital, nursing home, and permanent nursing home. In other words, the cause elimination life table adjusts estimates of (1) the probability that someone of, for example, pure type one will enter a nursing home and (2) the time from assessment to entry, for the confounding effects of the fact that an observation may end in an assessment, the study may end, or the person may be lost to follow up. The removal of these effects is referred to as "cause elimination". Beyond adjusting out the effects of these causes, an estimate may include death as a competing risk or further adjust the estimates for its effect. Since service use is of principle concern for this study, and since differential death rates between waiver clients and comparison group members may distort the estimates, the results reported below include this adjustment.

RESULTS OF THE GRADE OF MEMBERSHIP ANALYSIS

The variables used in the analysis, in concert, define the pure types. These variables are found in Exhibit 6-3, in the columns below the pure type(s) for which the variable is a characteristic. That is, when a variable is characteristic of a particular type, it is listed under the column for that type. Some variables (IADLs) are common in this population and the types are characterized for these variables by the absence of this characteristic. Note that while a person who is 100% like type one will have all of the problems that characterize this type, few people are 100% like any type. Most individuals are blends of two or more types and, thus, have some of

EXHIBIT 6-2
Results of the GDM Analysis, California MSSP, 3,831 EPISODES OF CARE

TYPE 1

TYPE 2

TYPE 3

TYPE 4

TYPE 5

ADL PROBLEMS

Internal Variables

WALKING

BEDFAST
INCONTINENT

BATHE
DRESS
EAT

BED TRANSFER
TOILET
INCONTINENT
WALKING

IADL PROBLEMS

(Most types have these problems)

NOT TRAVEL

NOT SHOPPING
NOT TRAVEL
NOT FOOD
NOT HOUSEWORK
NOT LAUNDRY

TELEPHONE
MEDICATIONS
MONEY

DESCRIPTIONS AND OTHER PROBLEMS

CURTAILED ACTIVITIES
L/T DANGEROUS DX
VISION
FEELS BAD
YOUNGER
FEMALE
NOT MARRIED

FEMALE
NOT MARRIED
ALONE

YOUNGER
MALE
HISPANIC

HEARING
VERY OLD
FEMALE
NOT MARRIED
ALONE

HEARING
CONFUSED
VERY OLD
LOWEST EDUCATION
BLACK
SNF USE
FORCED TO MOVE

EXHIBIT 6-2 (continued)
Results of the GOM Analysis, California MSSP, 3,831 EPISODES OF CARE

TYPE 5

TYPE 4

TYPE 3

TYPE 2

TYPE 1

MEDICAL DIAGNOSES

ASTHMA		
TB		
HIGH BLD PRESSURE	HIGH BLD PRESSURE	
HEART ATTACK		
HARDENED ARTERIES		
CANCER		
ULCERS		
KIDNEY TROUBLE		
DIABETES		
HERNIA		
MENTAL FITNESS		
BACK TROUBLE		

HIGH BLD PRESSURE

SOME HEART TROUBLE,
HEART

STROKE

NO ARTHRITIS

EPILEPSY

PARALYSIS

the characteristics of one type and some characteristics of another. The types are the extremes of the combinations of variables needed to define the underlying groups in the population. Based on the information presented in Exhibit 6-3, the five types may be characterized as:

Type one individuals are very old, very impaired people. Their medical problems are consistent with this characterization, consisting of stroke, epilepsy and paralysis. They have most of the ADL problems and all of the IADL problems. They are more often black, tend to have lower levels of education, are more often forced to move, and are confused as measured by the Portable Mental Status Questionnaire. They are not alone, otherwise they could not persist in living in the community.

Type two people are the very old widows. They are not as impaired (in ADL terms) as type one but they are alone. They are inclined to heart problems, have trouble walking and in performing the IADLs. Since these people do not have the informal support present in type one, they could not be as impaired as type one people are and still remain in the community. Types one and two are more often enrolled in the waiver and/or participants in the demonstration as clients. However, some controls are at least partly members of these types. It is this partial membership that allows comparisons of service use between the waiver clients and the comparison group.

Type three is the first and only type that is more often male than female. These people are younger than the population (of controls, waiver clients and demonstration clients) and are more often Hispanic. They have difficulty in travelling and with other IADLs, but no ADL problems. These individuals are often in the comparison group and rarely are found in the waiver program.

Type four are healthy females who live alone. Like type three, these people are more often members of the comparison group and are rarely enrolled in the waiver program. This is an indication of the success of the efforts at targeting made by the waiver program.

Type five is the acutely ill group. Consistent with this is the finding that they are more often bedfast. Their activities are otherwise curtailed, they report that they feel bad, and they often have four or more dangerous diagnoses. Among their medical problems are cancer, heart disease, kidney problems, and mental illness. This type is younger, female and not married.

These five types describe the population enrolled in the waiver and the demonstration client and comparison groups. In order to test the adequacy of these groups to control for differences in the multiple factors that influence service use, a separate GOM analysis was done including service use as grouping variables. The difference in the overall explanatory power of the two sets of GOM groups was evaluated and found not to be significant. In other words, actual service use did not

contribute significantly to the model, implying that the information used to create these types was adequate to control for systematic differences between those who received MSSP's services and those who did not.

RESULTS OF THE LIFETABLE ANALYSIS

The lifetable results are concerned with the probability that an individual of a given type (as defined above) will make a given transition (a move from e.g. home to nursing home) in a given period of time. These probabilities are computed separately for clients and for the comparison group. The difference in the probability between clients and controls within a particular type is the effect of the program for that type. That is, the programs effect can be observed only as a change e.g. a reduction in the probability that someone of type one will enter a nursing home from the community in the next year as compared to a very similar person (also type one) who did not receive the waived services.

The lifetables cover one year, and give the probability that someone (e.g.) in the community will move from the community to a hospital, to a nursing home, or to a permanent nursing home during this time. A separate estimate for each of these transitions, adjusted for those who die, are reassessed, and for the end of the study, is prepared for clients and controls in each pure type. These estimates are then blended to reflect the actual mixture of clients enrolled on the program -- providing a separate estimate for the program.

The single most striking finding of this analysis is the program's effect on hospital admissions. For the blended results, the comparison group (blended to match the pure type structure of the program) members had a 60% probability of entering the hospital. The MSSP waiver clients were much less likely to enter a hospital, 43%. Thus, the program was able to reduce this probability by 17%, a very significant reduction particularly given the high cost of a hospital admission. This comparison is adjusted to remove the effects of those who die, go to nursing homes or to permanent nursing homes. Thus, the magnitude of the effect actually observed in a real world program would be much lower. The observed effect on hospital admissions for MSSP, for example, was 2%, with 31% of the control group (the blended pure types who did not receive the services) going to the hospital. Absent cause

elimination, this is an unfair comparison because, as can be seen from the cause eliminated results, different proportions of clients and controls die, go to nursing homes, etc. during the study period. The point here is that, if going to the hospital were the only possible outcome, then MSSP would reduce hospital admissions from 60% to 43%.

Not surprisingly, Type 5, the acutely ill group, was the most likely to enter the hospital from the community, 83% probability for the comparison group, but this probability is about the same for clients. The program's services have little effect in reducing hospital admissions for these people. Instead, the program seems to reduce hospital admissions for the two very old types: types one and two. This completely unexpected result might reflect some heretofore unrecognized ability of case managers to somehow control hospital admissions for the frail elderly. One might speculate that, perhaps, physicians serving comparison group people were forced to use hospital admission as a substitute for an integrated and managed health care system.

People also enter the hospital from a short stay in the nursing home. Hospital admission rates from nursing homes are about the same as admission rates from the community -- 58% for the comparison group. The MSSP program was associated with a reduction in this rate for its clients to 51%, a reduction of seven percentage points. In addition, MSSP clients spent less time in the nursing home before going to the hospital than persons in the comparison group, 39 versus 49 days on average. Again the largest effects are for the very old and frail -- types one and two, but this result holds for all of the types.

The potential savings from the reduction in hospital admissions are offset to a slight degree by the fact that clients who enter the hospital do so sooner, in three months as compared to six for the comparison group and by the longer stays of clients -- a median of 5.1 days for comparisons as opposed to 5.6 days for controls. These results probably reflect the greater severity (on average) of those clients who are admitted to a hospital.

The program is intended to substitute waived home and community services for nursing home admissions. However, the blended results indicate that people very similar to the waiver program's clients are not all that likely to enter a nursing home

from the community. Only 1.7% of the comparison group entered a nursing home for a short stay and only 0.8% entered for a long stay. The clients fared better with probabilities of 1.1% and 0.3% respectively. These probabilities are for nursing home entry from the community. Nursing home entry from the hospital (for those who go to the hospital) is far more likely. The probabilities for comparisons are 39.6% and 11.0% for short and long stays respectively. For clients, these probabilities are similar, 39.0% and 8.5%.

Thus, although the program clearly has an effect in reducing nursing home admissions for both short and long stays, this effect is relatively small. In other words, the MSSP services are able to change the course of events in terms of entering a nursing home for only about one percent of the program's enrollees. This is because, not only does the program need to enroll people who are likely to enter a nursing home (a difficult targeting task), but, in addition, for those who would have entered a nursing home, the program must change this outcome. That is, if one in ten enrollees would have entered a nursing home and if the program services changed this outcome for one in ten of this ten percent, then the overall effectiveness of the program is one percent.

RESULTS OF THE COST ANALYSIS

During FY 1984, the first year of the waiver program and the year covered by this analysis, the MSSP found that its clients cost \$327 per month, on average (see Exhibit 6-1). This is high, in part due to the high startup and overhead and also to computer costs attributed to the program and in part due to the expense of case management. Nursing home care in California costs \$1020 per person per month. Thus, for each month that MSSP keeps someone out of the nursing home, the program saves $\$1020 - \$327 = \$693$. This is the logic that suggested that MSSP could actually save MediCal dollars by substituting waiver services for nursing home services.

However, MSSP can chose to enroll or not to enroll someone. Any given enrollee is either a potential nursing home patient or someone who would have remained in the community even absent the waived services. For the potential nursing home candidate, the program can effect this outcome by delaying entry or the person will enter the nursing home in any event. The savings from those correctly

targeted and whose nursing home entry is delayed must offset the cost of those who would not have entered a nursing home in any event and those who entered despite the provision of services.

The per month saving from those who are delayed is \$693 per month. The cost of the other clients (the cost that must be offset by this savings) is \$327 per month. This means that every person prevented from entering a nursing home offsets the cost of 2.1 people whose outcome were not changed by the program. Thus, to achieve budget neutrality for MediCal, MSSP must target and change the outcome for one of 3.1 people enrolled -- a 32% accuracy level. Since MSSP changes the outcome for about one percent of its enrollees (over two years), it did not achieve budget neutrality.

If non-MediCal costs are considered, then two categories of expenditure should be added to the equation. First, SSI/SSP payments cease upon entry into a nursing home. These payments averaged \$185 for MSSP enrollees in FY1984. In addition, Title XX (mainly in home services) are not paid to persons in nursing homes. This expenditure averaged \$208 per month during this time for MSSP enrollees. Considering these costs avoided reduces the net cost for nursing home care to \$650 per person per month, about double the program's average monthly cost.

At this point, savings from hospital care avoided have been omitted from the calculation. MSSP reduces hospital admissions. The expected cost of hospital care for a control group (the comparison group blended to match the distribution of MSSP enrollees across the five pure types) is \$1706 per person per year.

MSSP reduces hospital admissions and this increases the average length of stay. If a DRG payment system is assumed (meaning that increases in length of stay do not increase cost), then the expected cost of hospital care per enrollee per year for MSSP is \$1222 per year. This \$40.33 per month difference is not enough to make the program budget neutral, but this effect of MSSP is larger (in dollar terms) than its effect on nursing home use. The savings in terms of expected cost per enrollee per year from hospital costs avoided are almost enough to pay for one months program services.

In conclusion, the costs of MSSP services is not anywhere near offset by savings in nursing home costs. Very little of the waiver's cost is offset by savings due to nursing home costs avoided. This finding is due to the fact that very few clients enrolled in waiver were truly nursing home bound (services targeted to the wrong people) and to the observation that the services themselves do not appear to be effective in delaying or preventing nursing home admissions (services not an effective substitute for nursing home care) for those enrollees who were nursing home bound.

ENDNOTES

1. Miller, L. et al, The Comparative Evaluation of the Multipurpose Senior Services Project --1981 - 1982, Final Report, August, 1984.
2. The Multipurpose Senior Services Program, "Legislative Report", April, 1984. The State of California Health and Welfare Agency, p.1.
3. For example, this interpretation is used in the Report to the California State Legislature, "The Multipurpose Senior Services Program", April, 1984.
4. State of California Waiver Application, Health and Welfare Agency, Department of Health Services, March 3, 1983, p.4.
5. Second Annual Waiver Survey, January, 1986, p.14
6. Letter from Cynthia Cole, Community Care Management Corporation, January 30, 1987.
7. A more complete description of the Grade of Membership and Lifetable models as they were used for this analysis is found in The Multi-purpose Senior Services Program: An Empirical Evaluation, Working Paper, Medicaid Program Evaluation Series, HCFA, ORD, OR, 1987. See also: Manton, K.G., Stallard, E., Woodbury, M.A., Yashin, A.I., "Grade of Membership Techniques for Studying Complex Event History Processes with Unobserved Covariates", Sociological Methodology, 1987., and, Chiang, C.L., Introduction to Stochastic Processes in Biostatistics, New York, Wiley, 1968.

CHAPTER SEVEN

EVALUATION OF THE CALIFORNIA DEVELOPMENTALLY DISABLED SERVICES WAIVER¹

The California Department of Developmental Services (DDS) waiver, unlike the other waivers selected for case studies, exclusively serves the mentally retarded/developmentally disabled (MR/DD) population. The DDS waiver was selected for case study analysis in order to provide an in-depth examination of a relatively large MR/DD waiver program, and because automated person-based claims data on both waiver and non-waiver Medicaid costs for DDS waiver clients were readily available.

STUDY PURPOSE AND METHODS

This section presents the research questions addressed in the case study, the research methodology, the study sample, and data sources.

Research and Policy Issues

Like the other case studies within the overall evaluation, the primary objective of the DDS case study was to determine the impact of the DDS waiver on Medicaid and other Federal costs. The major research question was: Absent the waiver, would Medicaid costs have been more or less than they were under the waiver? Specific research questions addressed in the study included:

- What was the average Medicaid cost per waiver recipient?
- What was the aggregate cost for all waiver services?
- What were total (waiver plus other) Medicaid costs for waiver recipients?
- How did Medicaid costs for waiver recipients after their entry to the waiver program compare with their Medicaid costs prior to waiver program entry?
- What impact did the waiver have on Federal SSI and Medicare costs?
- What impact did the DDS waiver have on aggregate Medicaid expenditures for ICF-MR care at the State level?

Research Methodology

The research methodology employed in the DDS case study was to compare Medicaid costs of serving DDS waiver clients prior and subsequent to their entry to the waiver program. Average and aggregate costs to Medicaid of serving a sample of mentally retarded waiver clients in 1981, prior to the implementation of the waiver program, are compared with average and aggregate Medicaid costs of serving the same mentally retarded persons in 1983, after they were enrolled in the waiver. In sum, the case study employed a pre/post evaluation design, with the waiver population serving as its own control group.

The validity of this methodology rests upon two fundamental assumptions which are critical to the interpretation of study findings. First, the methodology assumes that the needs of the study sample for Medicaid-covered services did not change substantially over the two-year time period. We believe that this is a reasonable assumption for most developmentally disabled persons served under the waiver. The vast majority of DDS waiver clients were severely and profoundly retarded persons whose needs for habilitative, residential, medical, and behavioral management services change very slowly. This is unlike the elderly waiver population, where entry to the waiver or to a nursing home is often associated with a major decline in functional status. Thus, we feel that a pre/post evaluation design is more appropriate for the developmentally disabled waiver population than for the aged and physically disabled.

The second assumption is a more serious threat to the pre/post evaluation design. That assumption is that, absent the waiver, DDS waiver clients would have repeated their pre-waiver utilization and expenditure patterns in the post-waiver period. In other words, the design assumes that if DDS waiver clients had not been served under the waiver in 1983, that their 1983 Medicaid costs would have been what they were in 1981 (adjusted for inflation). Given that the majority of waiver clients were residents of the California State Hospital system in 1981, the design assumes that these waiver clients would have remained institutionalized had there been no waiver program. The validity of this assumption is discussed at more length at the end of the chapter, after the presentation of study results.

Data Sources

Two major data sources were used for this study. The first source was an automated waiver claims file maintained by the California Department of Developmental Services. This file contains waiver claims records, by type of service, by client, by month. The file also contains waiver eligibility data for persons enrolled in the waiver, and some data on client characteristics.

The second data source was the uniform enrollment and claims files of the California Tape-to-Tape data set. The Tape-to-Tape data set, developed under a separate HCFA contract, contains Medicaid enrollment and claims records abstracted from the State's Medicaid Management Information System (MMIS) on every person enrolled in the California Medi-Cal program, beginning in 1980.

To conduct the study, a link was made between the DDS waiver claims file and the Tape-to-Tape data set. This was necessary because California's MMIS does not contain detailed claims information for DDS waiver recipients. Rather, the Department of Developmental Services maintains its own detailed waiver claims file, and bills the State Medi-Cal program on an aggregate basis for the cost of waiver services. DDS pays waiver providers directly with its own funds, and in turn gets reimbursed from the State Medi-Cal program. The DDS waiver claims file serves as the backup for the aggregate DDS invoice in maintaining financial accountability for waiver service expenditures. In sum, the DDS waiver claims file provided data on the use and cost of waiver services, along with dates of waiver program enrollment and disenrollment, while the Tape-to-Tape data set provided data on the use and costs of all other Medicaid-covered services, along with additional Medicaid eligibility data.

Study Sample

The study sample included all DDS waiver clients who had at least one claim for a waiver service in calendar year 1983. From the DDS waiver claims file, 594 waiver clients were so identified. Of these 594, 22 could not be found on the 1983 Tape-to-Tape data set. In some cases, this was due to missing Medi-Cal identification numbers on the DDS file. This left a study sample of 572 waiver recipients.

CONTEXT AND DESCRIPTION OF THE DDS WAIVER PROGRAM

The California DDS Delivery System

California's delivery system for providing services to developmentally disabled persons is considered one of the most progressive, and well-funded, in the nation. In California's fiscal year 1984-85, which ran from July 1984 through June 1985, the California Department of Developmental Services administered a total budget of \$798 million, and provided services to some 74,200 clients and their families.

The foundation of the California DDS delivery system is the Lanterman Developmental Disabilities Act, which mandates the coordinated provision of services to all California residents with developmental disabilities, regardless of financial need. Amendments to the Act enacted in 1977 also established a Statewide network of 21 regional centers--private, non-profit, community-based agencies which serve as the single access point to all services funded by the Department.

Institutional care for developmentally disabled clients is provided primarily through California's system of eight State-owned hospitals. Some of the State hospitals serve not only developmentally disabled clients, but psychiatric patients, in separate wings. Most of the beds which serve the developmentally disabled are certified as ICF-MR beds, although some 2,400 beds in the State hospitals occupied by developmentally disabled clients are SNF-certified, not ICF-MR certified (Lakin et al, 1985).

The distribution of California's developmentally disabled population by residential setting in June 1982, just prior to the initiation of the waiver program, is presented in Exhibit 7-1. The majority of clients, about 35,000, lived at home with their natural parents, while another 3,000 lived in their own residence. About 16% of the total DDS population, 10,374 clients, were receiving institutional care, either in one of the State hospitals, or in a privately-operated ICF-MR facility. In June of 1982, most of California's privately-operated ICFs-MR had between 32 and 150 beds. At that time, there were no small-scale ICFs-MR, with fewer than 32 beds.

Exhibit 7-1

Distribution of California DDS Recipients by
Residential Setting in June 1982

<u>Residential Setting</u>	<u>Number of Clients</u>	<u>Percent</u>
SNF beds in State hospitals	2,408	3.7%
ICF-MR beds in State hospitals	5,516	8.5
Private ICF-MR beds	2,450	3.8
Community Care facilities	16,692	25.8
Own home	34,750	53.6
Independent living	<u>3,000</u>	<u>4.6</u>
Total	64,816	100.0%

Sources: Lakin, Hill and Bruininks, 1985; and California DDS, 1985.

Another 16,692 clients were receiving out-of-home residential care in what California calls Community Care Facilities (CCFs). CCFs run the gamut from small family homes serving six clients or less to large group facilities housing more than 150 clients. The majority of CCFs, however, are either family homes, in which CCF providers care for one to six clients in their own home; or small group residences owned by private individuals who hire staff to supervise residents. CCF operators are paid a monthly rate for each client, which varies by the client's level of disability and by the size of the facility. DDS pays the difference between the client's SSI/SSP payment, and the total monthly CCF rate from its own general State funds (except for waiver clients in CCFs, which are paid by Medicaid funds).

In 1982, California's residential care system was less dependent upon Medicaid as a financing mechanism than most States. Nationwide, 58% of all occupied residential care beds were ICF-MR beds; in California, only 38% of all beds were ICF-MR beds (Lakin et al, 1985). This is partly attributable to California's relatively generous State Supplementation Program (SSP). In January of 1984, California provided a monthly SSP payment of \$225 to a disabled individual receiving non-medical out-of-home care (with no other income) in addition to the Federal SSI benefit of \$314 per month. The average State supplement for disabled individuals in all other States was only \$40 per month (HCFA, 1985). Consequently, relative to States which have no SSP program or low SSP levels, California's Department of Developmental Services has somewhat greater flexibility in financing residential care through a combination of SSI/SSP payments and its own general funds, rather than relying on the ICF-MR program as a financing mechanism for small-scale facilities.

The California DDS Waiver Program

California's initial application for a waiver to serve the developmentally disabled was one of the first waiver applications submitted, and the first to be rejected by HCFA. In January of 1982, three months after the start of the waiver program, DDS submitted a waiver application to serve its entire CCF population, some 16,000 persons, under the waiver. The argument made by DDS in the application was that, without a waiver, there would be a substantial conversion of CCF facilities to small-scale ICFs-MR.

There was some merit to this argument. California had just finished developing regulations for a new category of ICF-MR facilities, to be called ICF-DD-Hs, which would apply to facilities with 15 or fewer beds. The regulations specified the facility and treatment standards which had to be met if CCF operators wished to convert to ICF-MR status. Second, CCF rates had been held down for several years, so that there was a financial incentive for CCF operators to convert to ICF-MR status, in order to obtain higher reimbursements. The average per diem rate for a CCF operator serving "intensive level" clients (the most disabled) was about \$25 per day, compared to an average per diem of \$44 for an ICF-DD-H (California DDS, 1984). Nonetheless, HCFA perceived the waiver application as an obvious attempt by DDS to refinance its CCF residential care system with Medicaid funds. In declining DDS's waiver request, HCFA stated:

"We believe that this proposal essentially involves the mass transfer of funding for patient care services from a wholly-funded State program to the Medicaid program."²

DDS then submitted a revised waiver application to serve a reduced caseload of persons who had been institutionalized in one of the State hospitals at some point subsequent to July 1, 1981, and who were severely or profoundly retarded with either: (a) fragile medical conditions; or (b) behavioral problems. The revised application was approved in November of 1982, with an effective date of July 1, 1982.

The DDS waiver covers CCF residential care and developmental training services, plus transportation, respite, and case management services for waiver-eligible clients. Waiver clients are generally the most severely impaired segment of the CCF population. The waiver covers the difference between the client's SSI/SSP payment and the total rate paid to the CCF provider for basic residential care (room and board plus on-site staffing costs). There are two basic types of residential care: (1) family services, which include all facilities with six clients or less; and (2) group home services, which include all facilities with more than six clients. In addition, the waiver covers "specialized services" provided to waiver clients in CCF facilities. These are specialized behavioral and developmental training services provided to the most severely impaired clients. Overall, only a small minority of CCF clients qualify for these specialized services, but most waiver clients do.

The waiver also covers the cost of day treatment services for waiver clients. Most all CCF clients participate in some kind of day treatment program, either a developmental training center (for the more severely impaired) or a day activity center (for more advanced clients). Some waiver clients participate in vocational-training programs but these services are not covered under the waiver, since they were precluded from coverage by Federal statute.³ The waiver also pays for transportation services from the CCF facility to the day treatment program. Since almost a third of DDS waiver clients are non-ambulatory, transportation services often involve contracts with vendors with specialized vans for wheelchair-bound clients.

A very small number of DDS waiver clients (9 out of 3069 in 1985) live at home with their natural parents. For these clients, the waiver pays for day training programs, as well as supportive services in the home and respite care.

Finally, the waiver reimburses the Department of Developmental Services for the case management of waiver clients at Regional Centers. This includes diagnostic screening, assessment, and level of care reviews required to enroll clients in the waiver, as well as ongoing monitoring of clients and providers throughout the client's participation in the waiver.

In the first year of the waiver, from July 1982 through June 1983, DDS enrolled 488 waiver clients. In the second year, the number of unduplicated recipients increased to 619 clients. In the spring of 1984, DDS submitted a waiver amendment request to expand its waiver population to include diverted as well as deinstitutionalized clients, significantly expanding its caseload. However, in order to be eligible as a diverted waiver client, an applicant was still required to have two or more moderate to severe deficits in behavioral or self-care skills, supported by an objective client assessment. Other factors taken into account in determining waiver eligibility were sensory deprivation (deafness or blindness); unstable medical conditions requiring close supervision; non-ambulation with inability to transfer; and dual diagnosis (mental retardation coupled with mental illness). The amendment request was approved by HCFA, and the DDS caseload increased to about 2,800 clients in July of 1984.

In requesting a three-year renewal of its waiver in the spring of 1985, California proposed continued modest expansions in its waiver program caseload in the range of 10% per year. However, HCFA rejected any further increases in the DDS caseload, on the basis that California could not document that it had sufficient ICF-MR bed capacity to serve the full caseload if the waiver were not approved. As a result, the DDS waiver caseload was capped at 3,360 clients for the second three years of its waiver program (October 1985 through September 1988), with moderate increases in allowable average costs per recipient in the range of 5% to 7% per year. Thus, the DDS waiver is presently in a fairly "steady-state," with new clients being enrolled in the waiver only as replacements for current waiver clients who leave the program for one reason or another.

At an expenditure level of about \$30 million per year, the California DDS waiver is one of the largest waiver programs currently in operation. Among waivers for the developmentally disabled, the DDS waiver is second in size only to Florida's, which served a caseload of 8,263 recipients in FY 1985. However, the DDS waiver still represents a relatively small percentage of total expenditures for community-based services in California. DDS's total budget for community services in FY 1985, including Regional Center operations, was \$282.5 million (DDS, 1985). Thus, waiver expenditures accounted for only 10.6% of the Department's total community-based services budget.

FINDINGS

This section presents findings on the utilization and expenditure patterns of waiver recipients in the California DDS waiver before and after enrollment in the waiver program. First, data on the use and cost of Medicaid services utilized by waiver recipients in the pre-waiver period (1981), prior to enrollment in the waiver program, are presented. This is followed by a presentation of the utilization and expenditure patterns of waiver recipients in the post-waiver period (1983), after they were enrolled in the waiver. The section addresses the basic question: How much did it cost Medicaid to serve waiver recipients prior to their entry into the waiver and how much did it cost after they were enrolled in the waiver?

Medicaid Status of Waiver Recipients in the Pre-Waiver Period (1981)

Exhibit 7-2 summarizes the Medicaid status of the study sample in the pre-waiver period. Of the 572 waiver recipients in the study sample, 507 (89%) were enrolled in Medicaid in 1981; 65 were not located on the 1981 Tape-to-Tape enrollment files and were therefore assumed not to have been enrolled in Medicaid in that year. Another 19 waiver recipients were enrolled in Medicaid 1981 but had no Medicaid claims in that year. This left 488 persons who were both recipients of waiver services in 1983, and recipients of Medicaid services in 1981. The data presented in this chapter are generally limited to utilization and cost comparisons of these 488 waiver recipients.

Exhibit 7-2 also shows that of the 488 waiver recipients included in the study sample, 413 were users of ICF-MR services in 1981, while 75 were not.

Given the importance of prior use of ICF-MR care in the analysis, cost and utilization data are generally reported separately for these two groups, i.e. 1983 waiver recipients who used ICF-MR care in 1981 (referred to as "1981 ICF-MR Users") and 1983 recipients who did not use ICF-MR care in 1981 (referred to as "1981 ICF-MR Non-Users").

The average length of Medicaid enrollment for these 488 recipients in 1981 was 351 days (or 96% of the total number of possible days of Medicaid enrollment). Thus, average costs per recipient in 1981 approximated average annual costs.

Characteristics of Waiver Recipients

In 1981, most waiver recipients were young adults between the ages of 19 and 34 (Exhibit 7-3). About 22% of the waiver population were children under age 19, while only three recipients were age 65 or over.

Almost two-thirds (65%) of all DDS waiver recipients were male. This was true for both ICF-MR users and non-users. This is partly due to the fact that there is a higher incidence of mental retardation among males than females, although the overall distribution is more in the range of 55% male to 45% female.

EXHIBIT 7-2

Status of Waiver Recipients in the Pre-Waiver Period

	<u>Recipients</u>	<u>Average Days of Medicaid Enrollment</u>
1981 Medicaid recipient: used ICF-MR services	413	351
1981 Medicaid recipient: used no ICF-MR care	75	351
1981 Medicaid enrollee: used no Medicaid services	19	327
Not enrolled in Medicaid in 1981	<u>65</u>	<u>0</u>
Total 1983 waiver recipients	572	350 days

Source: 1981 California Tape-to-Tape uniform enrollment files.

EXHIBIT 7-3

Age Distribution of Waiver Recipients in 1981

<u>Age</u>	<u>Number</u>	<u>Percent</u>
0-5	5	1.0%
6-12	17	3.5
13-18	85	17.4
19-34	267	54.7
35-64	111	22.8
65+	<u>3</u>	<u>0.6</u>
Total	488	100.0%

Source: 1981 California Tape-to-Tape uniform enrollment files.

In 1981, 72% of all waiver recipients received SSI cash assistance in addition to Medicaid, while 28% received Medicaid only. Relatively few users of ICF-MR services received SSI, since the SSI payment level for persons in Title XIX certified facilities is only \$25 per month. In other words, any waiver recipient who was in an ICF-MR in 1981 who had income of more than \$25 per month would not be eligible for SSI payments, and would be classified as medically needy.

The 1981 Tape-to-Tape uniform enrollment files also showed that 188 of the 488 waiver recipients (39%) were "Medicare-crossovers" in 1981. Medicare crossovers are Medicaid recipients who had at least one claim that was paid partly by Medicare and partly by Medicaid. Medicare crossovers underestimate the total number of waiver recipients who were also eligible for Medicare since they exclude eligibles who did not use any Medicare-covered services, or who only used Medicare services which had no deductible or copayment services (which would have been paid by Medi-Cal). Developmentally disabled persons under age 65 generally qualify for Medicare as Adult Disabled Children (Burwell et al, 1987).

Medicaid Utilization in the Pre-Waiver Period (1981)

Prior to entering the waiver program, most waiver recipients were cared for in ICFs-MR. In 1981, 413 (85%) of the 488 recipients in the sample used at least one day of ICF-MR care; the majority were in an ICF-MR for the entire year. Fifty-six percent used more than 350 days of ICF-MR care, and 90% used more than 180 days. The average number of ICF-MR days among all ICF-MR users was 309.

Waiver recipients who did not use ICF-MR care in 1981 were higher users of other Medicaid-covered services, as shown in Exhibit 7-4. The 75 ICF-MR non-users used more in-patient hospital days, ICF/SNF days, had more physician and hospital out-patient visits, and had significantly more drug prescriptions. Some of these differences are attributable to the fact that California's public ICFs-MR provide both physician care and prescription drugs under the rubric of its ICF-MR reimbursement rate. Thus, ICF-MR users did not necessarily receive less physician care or use fewer prescription drugs than ICF-MR non-users. ICF/SNF use among waiver recipients who were not ICF-MR users in 1981 was largely attributable to three waiver recipients over age 65 who were residents of SNF-certified facilities in the pre-waiver period.

Medicaid Costs in the Pre-Waiver Period

Medicaid costs in the pre-waiver period were dominated by the costs of ICF-MR care, as shown in Exhibit 7-5. Of waiver recipients who were ICF-MR users in 1981, ICF-MR costs alone averaged \$26,399, which accounted for 98% of their total Medicaid costs for that year. Average Medicaid expenditures for waiver recipients who were not ICF-MR users were only \$3,684, only about one-seventh the average cost for ICF-MR users. As previously discussed, ICF-MR non-users were higher utilizers of "generic" Medicaid services (physician care, drugs, out-patient hospital services, etc.) than ICF-MR users. Even excluding hospital and long-term care costs, average costs for other Medicaid services were only \$198 for ICF-MR users, compared to \$845 for non-users.

Aggregate Medicaid costs for all 488 DDS waiver recipients in the pre-waiver period were \$11,386,169, or \$23,332 per recipient (Exhibit 7-6). ICF-MR costs accounted for almost 96% of total costs, in-patient hospital care 2%, other long-term care 1%, and other Medicaid services another 1%. While ICF-MR non-users accounted for 15% of the waiver population, they accounted for only 2% of total Medicaid costs.

Medicaid Utilization and Costs in the Post-Waiver Period

This section presents data on what it cost the Medicaid program to serve DDS waiver recipients after they were enrolled in the waiver program. In this section, we also add a new group to the study sample: recipients of waiver services in 1983 who did not receive any Medicaid-covered services in 1981 (referred to as "1981 Non-recipients"). Eighty-four 1983 waiver recipients fell into this category--19 who were enrolled in Medicaid in 1981 but who did not receive any Medicaid-covered services, and 65 persons who were not enrolled in Medicaid at all in 1981. Utilization and cost data for this group are presented separately.

Waiver recipients were enrolled in the waiver for an average of 343 days in 1983, or 94% of all possible days. This is slightly less than the average number of days (351) for which they were enrolled in Medicaid in 1981. However, the difference is minor enough that we will continue to present utilization and cost data on a per

EXHIBIT 7-5

Average Medicaid Costs Per Waiver Recipient in the Pre-Waiver Period

<u>Medicaid Service</u>	-----Average Cost Per Recipient-----	
	<u>ICF-MR Users</u> (n = 413)	<u>ICF-MR Non-Users</u> (n = 75)
ICF-MR Care	\$26,399	\$ 0
Inpatient Hospital Care	\$ 292	\$1,387
ICF/SNF Care	\$ 13	\$1,452
Physician Care	\$ 68	\$ 248
Dental Services	\$ 4	\$ 18
Other Practitioner	\$ 28	\$ 77
Outpatient Hospital Care	\$ 25	\$ 108
Lab and X-ray	\$ 13	\$ 28
Prescription Drugs	\$ 24	\$ 199
Other Services	<u>\$ 36</u>	<u>\$ 167</u>
Total Medicaid Costs Pre-Waiver	\$26,902	\$3,684

Source: 1981 California Tape-to-Tape uniform claims files.

Exhibit 7-6

Aggregate Medicaid Expenditures for Waiver Recipients in The Pre-Waiver Period

	<u>ICF-MR Users</u>	<u>ICF-MR Non-Users</u>	<u>All Recipients</u>	<u>Average Cost Per Recipient</u>	<u>Distribution of Costs</u>
Inpatient Hospital Care	\$ 120,433	\$140,058	\$ 224,491	\$ 460	2.0%
ICF-MR Care	\$10,902,614	0	\$10,902,614	\$22,341	95.7%
Other Long-Term Care	\$ 5,404	\$108,900	\$ 114,304	\$ 234	1.0%
Other Medicaid Services	\$ 81,342	\$ 63,418	\$ 144,760	\$ 297	1.3%
All Medicaid Services	\$11,109,793	\$276,376	\$11,386,169	\$23,332	100.0%

Source: 1981 California uniform Tape-to-Tape enrollment files

recipient basis, until the final section of this chapter, in which costs are annualized. Seventy-one waiver recipients (12.4%) were terminated from the waiver at some point during 1983, although one recipient was subsequently reactivated. Recipients of waiver services in 1983 averaged only 87 days of waiver coverage in 1982, since the waiver only became effective on July 1, 1982. Thus, in presenting utilization and cost data for DDS waiver recipients in calendar year 1983, we are essentially describing the first year of the waiver program's operation.

Average 1983 expenditures per DDS waiver recipient, for both waiver-covered services and other Medicaid-covered services, are presented in Exhibit 7-7. The average cost of waiver services per recipient was \$7,316. Residential services (Family Services and Group Home Services) accounted for about 30% of total waiver costs. Specialized therapies provided in the residence accounted for 37% of total costs, and day program services accounted for 15% of all waiver costs. Case management services constituted 14% of total waiver expenditures. Respite and transportation services accounted for only 4% of total waiver costs.

By statute, the Section 2176 waiver cannot be used to cover the cost of room and board for waiver clients. Since waiver clients, unlike ICF-MR clients, receive their full SSI/SSP benefits, room and board costs are expected to be paid out of the clients' own income. In monitoring payments made to residential care providers under the waiver program, HCFA has generally taken the position that room and board costs are equal to the clients' SSI/SSP benefit level, minus a personal needs allowance. This is exactly how payments to CCF providers are made under the DDS waiver. From the total vendor payment made to CCF providers, DDS "backs out" the amount paid from client income (from SSI/SSP payments or other sources), and covers the balance under the waiver. In general, the SSI/SSP check is used to cover the cost of room and board, while the waiver is used to pay for residential program staff.

The California DDS claims included data on client payments for room and board costs. On average, DDS waiver recipients paid \$3,506 per year, or \$292 per month, from their own income, for room and board. Thus, the waiver paid for only about 40% of total residential program costs, while client income, primarily from SSI/SSP payments, paid for about 60%.

Exhibit 7-7

Average Medicaid Expenditures Per Waiver Recipient
in The Post-Waiver Period

I. <u>Waiver Services</u>	1981 ICF-MR Users	1981 ICF-MR Non-Users	1981 Non-Recipients	All Recipients
Family Services	\$ 849	\$ 545	\$ 630	\$ 777
Group Home Services	1,421	1,553	1,486	1,448
Special Therapies	2,542	2,260	4,012	2,721
Day Program Services	1,160	716	1,143	1,099
Respite	33	7	8	26
Transportation	241	157	412	255
Case Management	<u>984</u>	<u>1,012</u>	<u>999</u>	<u>990</u>
Subtotal	\$7,230	\$6,250	\$8,690	\$7,316
II. <u>Other Medicaid Services</u>				
Inpatient Hospital	\$ 297	\$ 264	\$ 168	\$ 274
ICF/SNF Care	19	45	110	36
Physician Care	232	253	211	232
Dental	N.A.	N.A.	N.A.	N.A.
Other Practitioners	146	150	179	152
Outpatient Hospital	98	95	63	92
Lab and X-ray	51	54	73	55
Drugs	N.A.	N.A.	N.A.	N.A.
Other	<u>233</u>	<u>143</u>	<u>164</u>	<u>211</u>
Subtotal	\$1,076	\$1,004	\$ 968	\$1,052
III. <u>Total Medicaid</u>	\$8,306	\$7,254	\$9,658	\$8,368

Sources: California DDS Waiver Claims Files, 1983; 1983 California Uniform
Tape-to-Tape Claims Files

Utilization of other Medicaid-covered services, on average, remained virtually unchanged in the post-waiver period.⁴ The use of physician services, other practitioners, and hospital out-patient services increased slightly among waiver recipients who were ICF-MR users in 1981. On the other hand, waiver recipients who were not ICF-MR users in 1981 used less hospital and other long-term care services under the waiver than they did prior to the waiver.

Expenditures for non-waiver Medicaid services averaged \$1,052 per recipient in 1983. Between 1981 and 1983 (see Exhibit 7-5), costs for the same set of Medicaid services (excluding ICF-MR, ICF/SNF, dental and drugs from both years' data) increased from \$462 to \$1,057 for 1981 ICF-MR users, and decreased from \$2,015 to \$959 for ICF-MR non-users.

The average total Medicaid cost per waiver recipient in the post-waiver period (1983), including waiver and non-waiver services, was \$8,368. Aggregate 1983 Medicaid expenditures for waiver recipients, including waiver and non-waiver services, (excluding expenditures for drugs, and dental care) totalled \$4,791,292 (Exhibit 7-8). Waiver services accounted for 87.3% of total costs, while non-waiver services accounted for 12.7%. Thus, as ICF-MR care accounted for the vast majority of 1981 costs for waiver recipients, waiver care accounted for the vast majority of 1983 costs. The data indicate that the DDS waiver had little aggregate impact on the use of Medicaid-covered services other than ICF-MR care.

Medicaid Cost Differences in the Pre-Waiver and Post-Waiver Periods

Differences in aggregate Medicaid costs between the pre-waiver and post-waiver periods are presented in Exhibit 7-9. For the 488 waiver recipients who were Medicaid recipients in 1981, total 1981 Medicaid costs, after adjusting for inflation and annualized to a full year of Medicaid enrollment, came to \$14,354,183 in 1983 dollars. For the same 488 recipients, after annualizing to a full year of waiver coverage, total 1983 costs came to \$4,245,348. Thus, it cost the Medicaid program \$10,108,835 less to serve these 488 clients under the waiver than it did in 1981, when no waiver was in effect. The average annualized cost per waiver recipient totalled \$29,414 in 1981 (after adjustments), compared to only \$8,699 in 1983, a 70% reduction.

Exhibit 7-8

Total 1983 Medicaid Expenditures for 1983 Waiver Recipients

	1981 ICP-MR Users n = 413	1981 ICP-MR Non-Users n = 75	1981 Non-Recipients n = 84	All Recipients n = 572	Distribution of Costs
Inpatient Hospital Care	\$ 122,693	\$ 19,755	\$ 14,146	\$ 156,614	3.3%
Other Long-Term Care	\$ 8,006	\$ 3,405	\$ 9,255	\$ 20,666	0.4%
Other Medicaid Services	\$ 318,745	\$ 52,510	\$ 58,010	\$ 429,265	9.0%
Waiver Services	\$2,986,043	\$468,750	\$729,954	\$4,184,747	87.3%
Total	\$3,435,487	\$544,420	\$811,365	\$4,791,292	100.0%

Source: 1983 DDS Waiver Claims Files and 1983 California uniform Tape-to-Tape claims files

Exhibit 7-9

Total Estimated Medicaid Savings of DDS Waiver Program in
1983 Dollars for 1981 Medicaid Recipients
 (n = 488)

Actual 1981 Medicaid costs	\$11,386,169
Total 1981 costs per full year of Medicaid enrollment	\$11,832,725
Total 1981 costs in 1983 dollars ¹	\$14,354,183
Average cost per recipient year in 1983 dollars	\$ 29,414
Actual 1983 Medicaid costs under the waiver	\$ 3,979,907
Total 1983 costs per full year of waiver coverage	\$ 4,245,348
Average cost per recipient year under the waiver	\$ 8,699
<hr/>	
Total Medicaid savings in 1983 dollars	\$10,108,835
Average Medicaid savings per recipient year	\$ 20,715
<hr/>	

¹1981 costs were inflated by the medical care component of the consumer price index for all urban consumers. The annual inflation factors were: 11.6% from 1981-82 and 8.7% from 1982-83. Source: Social Security Bulletin 49(5): 68, May 1986.

Estimated Impacts on Federal SSI Payments

Since most waiver recipients were in ICFs-MR in 1981, but not in 1983, Federal SSI costs for DDS waiver recipients were higher in the post-waiver period than in the pre-waiver period. The percentage of waiver recipients receiving SSI cash assistance increased from 72% to 84% after their entry to the waiver program. Further, payment levels increased substantially for those recipients who were receiving only \$25 per month from SSI while in an ICF-MR, but the full SSI benefit amount under the waiver.

From data maintained on the Tape-to-Tape data set, we estimated impacts on Federal SSI payments.⁵ We assumed that every waiver recipient who did not have a spend-down liability in 1981 or 1983 received the average Federal SSI benefit for a disabled recipient in those respective years. The average Federal SSI benefit for a disabled recipient in 1981 was \$188.15 in 1981 and \$219.22 in 1983 (SSA, 1985). For 1981 ICF-MR users, it was assumed that all recipients with no spend-down liability received an SSI benefit of \$25 per month. As shown in Exhibit 7-10, we estimated that Federal SSI benefits for the 488 waiver recipients who were Medicaid recipients in both 1981 and 1983 increased by \$667,546. This increase in Federal SSI costs would reduce estimated waiver savings from \$10.1 million to \$9.4 million, or 9%.

Impacts on Medicare Costs

This study did not collect data on Medicare payments for waiver recipients in the pre-waiver and post-waiver periods. However, from data available in this study, and from other studies, we believe it is reasonable to assume that the DDS waiver had a negligible impact on Medicare costs. For one, the waiver would have no impact on increasing the number of recipients eligible for Medicare. Thus, about 40% of the waiver population were eligible for Medicare in both the pre-waiver and post-waiver period.

Second, other studies show that average Medicare costs for disabled Medicare beneficiaries who are eligible as Adult Disabled Children are less than half the average Medicare reimbursement for other disabled beneficiaries (Lubitz and Pine, 1986). Average Medicare reimbursements for Adult Disabled Children beneficiaries, of

EXHIBIT 7-10

Estimated Impacts on Federal SSI Payments
(n = 488 waiver recipients)

Estimated SSI Payments to Waiver Recipients in 1981	\$232,115
Estimated SSI Payments to Waiver Recipients in 1983	<u>\$899,679</u>
Estimated Increase in Federal SSI Payments	+\$667,679
Estimated Increased SSI Payment Per Waiver Recipient	+\$1,368

Source: 1981 California Tape-to-Tape uniform claims files.

which approximately half are developmentally disabled, were \$634 in 1981. Note that this compares to an average Medicaid cost per waiver recipient of \$23,332 in the same year.

Third, data from this study showed that the waiver resulted in only slight increases in the use of other Medicaid-covered services which would also be covered by Medicare, namely inpatient and outpatient hospital services, and physician services. Consequently, although a significant proportion of the waiver population were Medicare-eligible, we believe that impacts on aggregate Medicare utilization and costs are marginal compared to impacts on Medicaid-covered services.

Impacts on Aggregate ICF-MR Expenditures in California

Although the data presented in this study showed significant decreases in Medicaid costs for waiver recipients in the post-waiver period compared to the pre-waiver period, this does not necessarily mean that these reduced costs were realized at the Statewide, or system, level. In order for these cost savings to be "real," reduced costs at the person level must also be observed at the system level. In other words, the pre/post evaluation design assumes that since DDS spent \$10.9 million for ICF-MR care for waiver recipients in 1981, and zero dollars in 1983, that total ICF-MR expenditures declined by a similar amount over the pre/post waiver period.

Data presented in Exhibit 7-11 suggest that the observed reduction in Medicaid costs in this study may indeed be illusive. The exhibit shows that while California was successful in reducing the number of developmentally disabled persons in its State hospital system by 12% between the 1981 and 1985, aggregate expenditures for its State hospitals still increased by 23% over the same time period. This is because most of the costs of operating large-scale public institutions are fixed costs. Consequently, the average cost per State hospital client increased by 39% over the same time period, from \$40,345 per year to \$56,095. These data underscore the importance of examining both person-level and system-level impacts in evaluating the cost-effectiveness of home and community-based services in Medicaid.

EXHIBIT 7-11

Aggregate Impacts of DDS Waiver: California State Hospital
Recipients and Expenditures in the Post-Waiver Period

<u>CA Fiscal Year</u>	<u>State Hospital Recipients</u>	<u>State Hospital Expenditures</u>	<u>Average Cost Per Recipient</u>
1981-82	7,877	\$317.8 million	\$40,345
1982-83	7,520	312.1	41,503
1983-84	7,395	343.7	46,477
1984-85	6,965	390.7	56,095

Source: California Department of Developmental Services, 1985. State Hospital expenditures include costs for developmentally disabled clients in both SNF and ICF-MR certified beds in State Hospitals.

Discussion of Findings

There are both positive and negative aspects to the findings of the California DDS case study. On the positive side, there is little doubt that California targeted a severely disabled waiver population which was at high risk of ICF-MR placement absent the waiver. Almost 85% of the waiver population had been institutionalized in California's State hospital system during the pre-waiver period. All waiver recipients in the study sample were either severely or profoundly retarded; most were not toilet-trained, many were both non-verbal and non-ambulatory. The majority had a history of maladaptive behaviors requiring specialized behavioral therapies.

Further, study findings showed that care for these persons cost far less to Medicaid under the waiver than ICF-MR care in the State hospital system. Average Medicaid costs per client under the waiver were \$8,699 in 1983, only 30% of the average Medicaid cost of serving the same clients in 1981. Even if one adds on increased Federal SSI costs and State Supplementation Payments (SSP) to the costs to Medicaid, the overall reduction in cost remains substantial. Data from this and other studies suggest that Medicare cost impacts were marginal.

The magnitude of cost differences between care provided under the waiver and ICF-MR care does at least suggest that there are inefficiencies in the ICF-MR program which are potentially realizable. Although this case study did not measure the quality of care provided under the waiver compared to the quality of care provided in the State Hospitals (measures which are needed to make a true evaluation of the relative cost-effectiveness of waiver care versus ICF-MR care), neither did we uncover any evidence to suggest that the quality of care provided under the waiver was in any way inferior. The California Department of Developmental Services is regarded as having one of the most well-developed community-based service systems, with extensive client monitoring systems, and rigorous licensing and program standards for its residential and day treatment programs. We have no reason to believe that the reduced cost of serving clients under the waiver was in any way related to a reduction in the quality of services provided to waiver clients.

Despite the lower per capita costs of serving developmentally disabled persons under the waiver, these findings do not mean that the waiver program actually saved

the Federal government money. A critical question is: Would California have funded these waiver services out of its own funds if the waiver had not been in effect? All the services provided under the waiver were services which DDS provides under its generic community-based services program. Although the waiver targeted persons who had been previously served in State Hospitals, the vast majority of these waiver clients had already been deinstitutionalized prior to their entry to the waiver. Thus, the waiver was made part of a deinstitutionalization effort which had been initiated prior to the implementation of the waiver, and which would have continued even if the waiver had not been approved.

Like many other Section 2176 waivers for the developmentally disabled, a key question is whether Federal expenditures for waiver services actually increased total State funding for community-based services, or whether the waiver simply refinanced community-based services which would have been funded entirely by State funds in the absence of the waiver. In the case of California, a relatively well-to-do State with a long history of commitment to community-based services, it does not appear that the waiver has had any effect on increasing the supply of community-based care. DDS spent almost \$300 million for community-based services in FY 1985, and the \$12.5 million in Federal revenues generated under the waiver program represents only 4% of the total budget for community services.

The refinancing issue is a difficult problem to evaluate. Prior to the waiver, most States had begun shifting their resources towards funding exactly those types of services which are now eligible for Federal participation under the waiver program. From the States' perspective, there are obviously clear incentives to finance services which were previously 100% State-funded under the waiver in order to secure Federal participation through Medicaid. It is the legitimate job of State administrators to maximize Federal participation in the financing of State programs. Similarly, the State perspective is that the waiver is a late and limited Federal response to the investment in community-based services which States have been shouldering on their own for some time.

From the Federal perspective, refinancing is perceived as cost shifting from State budgets to the Federal budget. Even without Federal participation under Medicaid, it can be argued that States would continue to finance community-based

services in response to successful lobbying by advocacy groups, mandates from the judicial system, and their own policy commitments. The system for providing services to developmentally disabled persons is clearly shifting from institutional environments to community-based environments. By refusing to participate in this shift, and by restricting Medicaid coverage to institutional care, Federal costs will undoubtedly be less than if Federal Medicaid policy reflects the shift in programmatic philosophies towards community-based care.

Aside from the refinancing issue, however, is the additional concern that the expansion of community-based services and the deinstitutionalization of State institutions is not leading to reductions in the aggregate expenditures for ICF-MR care. As in many other States, the population of California's State institutions has declined considerably in recent years. However, dollars are not following clients into the community; the dollars are staying in the institutions. Per client costs in public ICFs-MR are going up rapidly as the cost of operating these institutions are spread over fewer and fewer clients.

Why haven't States been as successful in reducing their aggregate costs for ICF-MR care as they have been in reducing their institutional populations? The answers to this question are extremely complex, and involve many issues outside the purview of the Section 2176 waiver program. Two major factors are: (1) State institutions for the developmentally disabled are major employers in the areas in which they are located and there are strong political pressures to keep them operating; and (2) State-operated ICFs-MR generate Federal revenues above and beyond the direct costs to States of operating those institutions, so that States themselves have strong financial incentives to maintain them. Consequently, while the expansion of community-based services under the waiver or through other financing sources is a necessary component of a more cost-effective long-term care system for developmentally disabled persons, it is not the sole prerequisite. As in the development of more cost-effective long term care policies for our nation's frail elderly, the targeted expansion of community-based services is but one piece of a comprehensive long term care policy. The institutional side of the equation, in this case Federal financing of ICF-MR care, must also be addressed directly if aggregate Medicaid resources are to be spent more cost-effectively.

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ENDNOTES

1. This chapter is based on: Burwell, B. and DeFilippes, P. "An Evaluation of the California Department of Developmental Services Section 2176 Medicaid Waiver Program," (draft) June 24, 1986.
2. Letter from Carolyn K. Davis, [former] Administrator, Health Care Financing Administration to Beverlee A. Myers [former] Director, California Department of Health Services, March 18, 1982.
3. Under amendments made to the Section 2176 waiver in COBRA 1985, pre-vocational and vocational training services may now be covered under the waiver, but only for waiver clients who have been deinstitutionalized from ICF-MR facilities since April 1, 1985.
4. Uniform 1983 California Tape-to-Tape claims for dental services and prescription drugs were not yet available at the time of the study.
5. The waiver program also had an impact on payments made under California's State Supplementation Program (SSP), but these costs are not estimated in this report.
6. Burwell, B., Clauser, S., Hall, M.J., and Simon, J. "Medicaid Recipients in Intermediate Care Facilities for the Mentally Retarded." Scheduled for publication in the Health Care Financing Review, Spring 1987.
7. Department of Developmental Services. Californians with Developmental Disabilities: Client Characteristics, Services Received, Dollars Expended, March 1984.
8. Department of Developmental Services. Californians with Developmental Disabilities: Client Characteristics, Services Received, Dollars Expended, August 1985.
9. Lakin, K.C., Hill, B.K. and Bruininks, R.H. (Eds.). An Analysis of Medicaid's Intermediate Care Facility for the Mentally Retarded (ICF-MR) Program. Minneapolis: University of Minnesota, Department of Educational Psychology, 1985.
10. Lubitz, J. and Pine, P. "Health Care Use by Medicare's Disabled Enrollees." Health Care Financing Review, Vol. 7(4):19-32, Summer 1986.
11. Social Security Administration, Office of Supplemental Security Income. The Supplemental Security Income for the Aged, Blind, and Disabled. Selected Characteristics of State Supplementation Programs as of January 1984. SSA Publication No. 13-11975, Revised December 1984.
12. Social Security Administration, Office of Research, Statistics, and International Policy. Social Security Bulletin: Annual Statistical Supplement, 1984-85. SSA Publication No. 13-11700, 1985.

CHAPTER EIGHT

EVALUATION OF CALIFORNIA IN-HOME MEDICAL CARE (IHMC) WAIVER

The California In-Home Medical Care (IHMC) waiver was chosen for in-depth study since it is a waiver program which very knowledgeable people thought to be very cost-effective, which has readily available data on recipients and services, and which serves a population at high risk of long term care at the acute hospital level. The waiver targets in-home nursing services to catastrophically disabled individuals, including small children, who most often are ventilator-dependent, and require long term acute hospital care. Most of the 115 individuals in the program, which includes a large number of children, are ventilator-dependent and all suffer from multiple chronic conditions that require 24 hour licensed nursing observation and care.

Medi-Cal in-patient hospital expenditures for many of these people are known to run as high as \$1,000 per day. The assumption of the IHMC waiver program is that substantial savings can be realized by deinstitutionalizing the individuals to home care with the help of the waiver services. IHMC program managers assert that a cost-effectiveness test is applied as a condition of program entry; i.e., the total cost of waiver services must be less than the statewide average Medi-Cal hospital contract per diem of \$525.

California's Medicaid program expends approximately one and one-half billion dollars annually on acute hospital care, making acute care the single most expensive service covered by the Medi-Cal program. The purpose of the IHMC waiver is to provide home-based medical and social services to hospitalized Medi-Cal recipients who, with the waiver services, could fare just as well at home.

The cost of the in-home services is thought to be considerably less than inpatient care. California's waiver application states that savings of approximately \$15,000 per month per patient can be achieved while at the same time permitting a more normal, meaningful life for the patients.¹

The purpose of this evaluation of the IHMC program is to document how the program works, assess actual cost-effectiveness, and draw conclusions as to strengths and weaknesses in the program.

METHODS AND DATA SOURCES

Several site visits were made by our evaluation team to review the waiver program operations with Department of Health personnel in Sacramento who are responsible for the IHMC program. In addition, client case files were pulled and reviewed in Medi-Cal field offices in Sacramento and Oakland. The purpose of the case file analysis was to verify that the program worked as intended with respect to procedures and quality control. A second purpose of the case file analysis was to gather detailed information about client health status and functional dependency, services received, and cost of services. In all, 18 case files were reviewed and abstracted.

While in Sacramento our team reviewed the waiver services accounting system and accounting procedures, and a small data system on waiver recipients. These data were collected and used in our analysis of utilization and cost analysis. Our team also requested access to Medi-Cal paid claims files. Originally, Medi-Cal Claims Detail Reports (CDR's) on a 50 percent sample of all IHMC clients ever enrolled was requested of the Medi-Cal Field Services Branch. It was later determined that CSC - the fiscal agent for Medi-Cal - only maintains a 15 month Medi-Cal claims history on-line for each Medi-Cal recipient. Because of the date of the request, the CDR's received from California were only for claims with a date of service after January 1, 1985. Further, we only received CDR's for approximately 40 IHMC clients. Of the 40 clients, only 20 had enrolled in the program at a late enough date (i.e., after March 31, 1985) so that the CDR - for that client - contained both a three month prior and a three month post-waiver entry Medi-Cal claims history. (For two clients, there was no prior Medi-Cal history as these clients were accepted into the IHMC program straight from a VA hospital. The cost analysis was conducted both with and without cost data included for these two clients.) Upon further analysis it was discovered that the enrollment dates originally supplied to us by the IHMC staff for nine of the 20 were wrong; these nine were actually enrolled in the IHMC program prior to January 1, 1985. At this point, Field Services Branch staff in California were asked

to make a request of CSC for a special computer run to obtain "valid" CDR's for the nine clients with previously incorrect enrollment dates. Valid CDR's are those which contain both the three month prior and the three month post-waiver entry Medi-Cal claims for a beneficiary. Valid CDR's were obtained for eight of the remaining nine clients. Thus, we ended up with a sample size of 19 (out of 167 clients ever enrolled) clients.

In addition to the on-site discussions and document review, our team also met with HCFA staff in the San Francisco Regional Office to discuss their perspectives on the waiver program. They had recently completed their FY1986 Targeted Area Review² which substantially verified that the waiver program worked as described in California's waiver proposal, that substantial program savings were being realized and that waiver recipients were better off being cared for at home.

In summary, five data sets were used to conduct this evaluation:

- Case files for a representative sample of 18 IHMC clients were selected and abstracted by the La Jolla evaluation team from the Oakland and Sacramento Medi-Cal field offices. Information abstracted from case files includes a client's level of care certification, activities of daily living (ADL) score, care setting prior to waiver entry, and services received prior to waiver entry.
- IHMC waiver service accounting files, by recipient for waiver year 7/1/84 - 6/30/85, obtained from the IHMC accounting office. This file contains detailed waiver service and cost data for each client served by California's IHMC waiver during the waiver year. This file does not include non-waiver (State plan) Medi-Cal service and cost data.
- IHMC program raw data on recipient demographic, medical and functional characteristics. These raw data were contained in an internal data base maintained at the State headquarters in Sacramento, and were made available for purposes of this evaluation.
- Medi-Cal paid claims history files for 19 waiver recipients, including history before and after IHMC entry. These data were made available by the Department of Health Services in Sacramento after any individual identifying information had been removed.
- Draft expenditure (HCFA 372) reports for years one and two of the waiver (7/83 - 6/85).

The above data are used to describe IHMC recipients, enrollment levels in year one (7/1/83 - 6/30/84) and year two (7/1/84 - 6/30/85) of program implementation. The waiver service accounting data are used to compute and verify the cost of waiver services, by type of service. The case file abstracts are used to verify that recipients were actually certified at the acute level of care, to find out the recipients' medical history and service use prior to program entry, and to verify that the program operates as described in the operating manuals.

The most important evaluation issue is cost-effectiveness. We used the Medi-Cal paid claims files for each sample recipient to quantify service utilization and Medi-Cal expenditures prior to and after entry to the waiver program. These expenditures, along with waiver service cost data, yield total Medi-Cal expenditures before and after entry. In theory, if the waiver saved any money total Medi-Cal expenditures would fall after recipient entry into the waiver program since acute care costs would be replaced by at-home nursing and other services. Our analysis tests this hypothesis.

DESCRIPTION OF IN-HOME MEDICAL CARE PROGRAM

The IHMC waiver was approved by HCFA for implementation July 1, 1983 for a three year period. The waiver's primary target population is comprised of chronically and catastrophically ill, respirator-dependent individuals of all ages; including a large number of children and young adults. Enrollment is currently (August 1986) about 115 individuals. The theory is that there are substantial savings to Medi-Cal since waiver services make it possible for recipients to be cared for at home rather than be in expensive acute care hospital settings. The program is highly regarded since the home care services, typically nursing, enable a patient to come home from the hospital and be cared for in the family environment.

Program Administration

The IHMC waiver is administered by the California Department of Health Services (DHS) through the Medi-Cal program. The waiver was implemented on July 1, 1983 for three years, and extended on June 30, 1986 until June 30, 1987.

Administration of the waiver is the responsibility of the Medi-Cal Field Services Branch and its 12 field offices. Potential IHMC patients are identified and brought to the attention of the Medi-Cal Field Offices by hospital discharge coordinators, physicians, family members, and home health agencies. In some instances, home health agencies will solicit potential clients from hospitals or potential clients (and their families) will hear about the program and contact the DHS for information pertaining to possible program entry. Usually, though, potential clients are identified by hospital discharge planners and then brought to the attention of the California DHS for possible entry into the waiver. All potential clients must meet routine eligibility standards for Medi-Cal.

Appropriate field office personnel, e.g., nurse, social worker, then hold preliminary discussions with hospital staff or the attending physician to determine whether the patient would, in fact, qualify for services under the waiver program. This includes obtaining information on the patient's general medical condition and medical care needs, the current and anticipated approximate monthly cost of care in the acute hospital, the home situation, the patient's need for medical equipment and services, the likely need of the patient for periodic acute hospital care and the identity of the attending physician so that arrangements can be made for patient care needs assessments and prospective provider agency staff.

Once a patient has been determined to be eligible for IHMC services, the field office contacts several home health agencies serving the geographical area of the patient's home to determine if they are interested in caring for the patient and capable of providing the needed shifts of nursing care. Agencies interested are requested to submit a cost estimate which includes the hours of care by type of staff person (RN, LVN, aide) they believe appropriate to care for the patient, the total cost of care per hour and per 8 hour shift. The total cost includes all overhead costs and case management visits to the patient's home. A few of the recipients live in foster care homes.

The selected home health agency then provides a detailed plan of care which is reviewed by the patient's attending physician. The physician also provides a history and physical examination of the patient, and accepts overall medical responsibility for the patient while under the IHMC program. A Medi-Cal field office physician

consultant reviews the proposed patient plan of care. All of the above information is sent to the Field Services Branch headquarters in Sacramento for final approval.

Generally, clients are not discharged home from a hospital until they are formally accepted into the IHMC waiver program. In a very small number of cases, clients have been discharged home prior to formal acceptance into the program. In these cases, discharge home is done against the wishes and advice of the California DHS administrators, and services are not provided until formal acceptance into the program has been granted.⁴

Upon approval, a contract is let to the provider agency to begin service delivery to the patient. The patient's attending physician is responsible for monitoring care and patient status. The provider agency also provides case management services which typically is a home visit once a week by a nursing supervisor to check on the adequacy of the services and the patient's condition. Prior to the provision of services, the provider agency must submit a treatment authorization request (TAR) to the appropriate Medi-Cal Field Office which outlines the services that the provider deems appropriate for the care of a client. Only those services which have been defined in the provider contract may be requested. The TAR is certified by the client's attending physician before being forwarded to the Field Office. Once the TAR is approved by the Field Office Medical Consultant, a provider agency can deliver services to a client. Thus far TARs have been authorized for time periods of 60 days for the first TAR, and up to 120 days for all subsequent TARs. Monthly invoices are sent to the field offices for review and approval and forwarded from there to the waiver accounting services staff in Sacramento for payment and recordkeeping. Any charges on an invoice not requested in a TAR for that period will be disallowed.

The waiver accounting services staff produce the annual expenditures report (HCFA 372) from claims records. The system is currently being automated. Waiver cost and service data are collected by California IHMC accounting staff through the use of TARs. All waiver services delivered and costs associated with those services are captured on TARs, and through this mechanism picked up by IHMC accounting staff. Non-waiver traditional Medi-Cal claims are processed through normal channels by the fiscal agent (Computer Sciences Corporation).

ELIGIBILITY CRITERIA AND PEOPLE SERVED

Eligibility Determination

To be eligible for IHMC services, clients must be Medi-Cal eligible, have no third-party sources of payment currently paying for in-patient or home care, and must require acute level of care for an extended period. The California IHMC waiver program does not utilize any expanded eligibility options (e.g., 300 percent option or waiver of deeming) to establish potential client eligibility for the waiver. Once the patient is discharged from the hospital setting to the home, family income is still "deemed" available to the client. That is, the client must be eligible for Medi-Cal outside an institution. In addition, the monthly cost of in-home medical care must be less than acute hospital care.

This cost-effectiveness estimate is obtained as follows:

- Average daily cost of shift nursing care and weekly R.N. visits
- Average daily costs of other waived services, such as utility coverage for life-support equipment, needed modifications to the home, etc.
- Average daily costs of non-waivered (regular Medi-Cal) services such as durable medical equipment, medical supplies, drugs, ongoing therapies, outpatient visits, physician services and inpatient episodes
- Costs are compared against the average daily statewide hospital contract rate of \$525 or the average daily contract rate of the hospital in which the individual is an inpatient, if the latter is known.

If the average daily costs for in-home medical care are less than the hospital contract rate, and the client meets all other basic program requirements, then the client is considered eligible for the IHMC program.

Final approval for program entry can be made when the client's attending physician accepts responsibility for the ongoing plan of care in writing. In addition, there must be a safe and supportive home environment and a certified home health agency willing to provide the care on a mutually acceptable contract basis.⁵

Although the waiver application, projected cost savings, and all subsequent correspondence with HCFA suggests that patients are in an acute care setting prior to waiver program entry, the application does not specifically preclude eligibility for those patients who are already at home but are found to be at high risk of prolonged acute care stays.

Waiver Population

IHMC is intended to support community (home) placement of chronically and catastrophically ill individuals of all ages, who would otherwise require acute hospital care for a prolonged period of time. Nominally, the clients are SNF level but require such an intensive level of nursing service that SNFs will not accept them (SNFs are also reluctant to accept children, who comprise a major part of the waiver clientele).

According to State statistics on the program (draft HCFA Form 372) the enrollment levels in the waiver were as follows:

- During the first year of the waiver (July 1, 1983 - June 30, 1984), 79 people were served by the program; most having a medical assistance status of disabled
- Close to 20,000 days of waiver coverage were provided to these recipients
- The report indicates that 78 of the total unduplicated count of 79 people served were in acute care hospitals immediately prior (within the waiver year) to entering the waiver
- According to the waiver application, most of the waiver population is under 21 years of age and chronically ill, with severe disabilities

The waiver application depicts the target population as long-term hospital patients who are candidates for deinstitutionalization to the home. Home care is considered more humane for the client and the family. As long as the cost of home care services is less than prior acute care cost, savings are attributed to the waiver program. This cost-effectiveness criterion is applied to every case as a condition of entry to the program. Since inpatient costs to Medi-Cal can average \$600-\$1,000 per day for these clients, the waiver application projects substantial savings.

Characteristics of the Waiver Population

Findings from review of program data and case records verify that the waiver client population is primarily young and in extremely poor health. The sections below describe the population demographics and health and functional dependency status of IHMC clients.

Age and Sex

According to the IHMC internal data base file,⁶ as of January 1986 approximately 167 people have been served by the waiver since July 1, 1983. Their age and sex characteristics are given in Exhibit 8-1 shown below:

Exhibit 8-1
Age and Sex of IHMC Waiver Population (July 1983 - Jan. 1986)

Age	Male	Female	Total	Percent
<21	45	34	79	48%
21 - 44	27	14	41	24%
44 - 65	10	14	24	14%
65+	11	10	21	13%
Unknown	1	1	2	01%
Totals	94	73	167	100%

Source: California Department of Health Services Internal Database file.

The size of the program as of July 1985 is approximately 115 people. Almost half of all IHMC recipients are children. The small size of the program reflects the exclusivity of the target population in that they are certified for acute level of care on a prolonged basis, have a suitable home environment to which they could return, could manage with in-home services, and could meet all of the eligibility requirements. These criteria account for the small numbers in the program.

Health and Functional Status

The typical client is respirator-dependent, often comatose, and has little improvement potential. Mortality accounts for almost all terminations (3-5 per year for the caseload). Thus, IHMC represents lifetime care. These IHMC clients have severe chronic conditions that are likely to persist for the rest of their lives. Retardation is prevalent in the population due to brain damage at birth. Conditions of major prevalence include:

- Quadriplegia
- Cerebral palsy
- Severe respiratory diseases and disorders
- Lateral sclerosis

These conditions are such that they require 24-hour care to monitor breathing, life-support equipment, and otherwise care for the patient. Care is extremely demanding.

Data on functional dependency levels was abstracted from case files. As expected, the degree of functional impairment is extreme with these patients. In all but one case sampled, the ADL level was 4. (ADL levels range from 1 to 4. A value of 4 denotes the most severe dependency level, assistance needed toileting and/or eating, and 3 denotes assistance needed bathing and/or dressing. A score of 2 means assistance is needed in mobility only, and a score of 1 denotes no help needed in activities of daily living.) Exhibit 8-2 shows functional dependency levels for the 18 sampled cases along with their corresponding health conditions. Thus, from a clinical viewpoint the IHMC waiver is well targeted to acute care level clients who, under the right conditions, could be cared for outside the hospital environment.

WAIVER SERVICES

IHMC waiver services are case management, home health aide, respite care, minor physical adaptations to the home, utility coverage and up to 24-hour nursing services. In addition, all clients are eligible to receive regular Medi-Cal benefits. Durable medical equipment, a waiver provided benefit in many States, is provided under traditional State plan Medi-Cal in California.

Exhibit 8-2

Functional Status Profile N = 18

<u>Primary Diagnosis</u>	<u>Secondary Diagnosis</u>	<u>Adl Level</u>
Achrodysostosis	Cerebral Palsy with Quadriplegia	4
Amrotrophic Lateral Sclerosis	Progressive Paralysis	4
Brain Stem Contusion	Chronic Pneumonia	4
Bronchopulmonary Dysplasia	Developmental Delay	4
Bronchopulmonary Dysplasia		3
Encephalitis	Comatose	4
Glycogen Storage Disease	Severe Retardation	4
Hydrocephalus	Retardation	4
Hypoxic Encephalopathy	Severe Retardation	4
Leukodystrophy	Mental Retardation	4
Meningitis	Brain Stem Infarction	4
Metachromatic Leukodystrophy	Quadriplegia	4
Muscular Dystrophy		4
Muscular Dystrophy	Cataracts	4
Pierre-Robin Syndrome	Respiratory Distress Syndrome	4
Quadriplegia		4
Spina Bifida	Hydrocephalus	4
Transverse Myelopathy	Quadriplegia	4

Key (ADL Level):

- 1 = No help needed.
 - 2 = Assistance needed in mobility only.
 - 3 = Assistance needed bathing and/or dressing.
 - 4 = Assistance needed toileting and/or eating.
-

Source: Abstracted Case File Data

Depending upon their needs as defined by the plan of care the following definitions apply to each service:

Case Management. The home health agency or other provider approved by Medical assigns a case manager to be responsible for implementation, oversight, and monitoring of each individual plan of care. Case managers work with family members to support family involvement in meeting the client's needs as well as the patient's attending physician to monitor the patient's progress.

Home Health Aide Services. Home health aide services are also provided by a home health agency under the supervision of a registered nurse. Services include simple physical therapy, personal care when medically indicated, ambulation and exercise, household services essential to health care in the home, assistance with medication, reporting changes in the patient's condition, and recordkeeping.

24-hour Nursing Service. Twenty-four hour nursing service means skilled nursing services provided up to 24 hours per day to a patient by or under the direction of a registered nurse in accordance with physician's orders. The service includes patient evaluation and reevaluation, development and implementation of an ongoing plan of care, nursing services (treatment, diagnosis, prevention), rehabilitative procedures, observation of signs and symptoms, and supervision of other nursing service personnel.

Minor Physical Adaptation to the Home. Those minor physical adaptations necessary to enable the patient to receive care in the home given the patient's unique physical condition and requirements. Examples include installation of 220 volt wiring for placement of life-sustaining medical equipment, wheelchair ramps, bars for bathrooms, etc.

Utility Coverage. Utility coverage is defined as the payment for those utility bills directly attributable to continuous, 24 hour operation of life sustaining medical equipment; e.g., a respirator.

Respite Care. Respite care is temporary, short term care for individuals who are receiving in-home medical care. The purpose is to give relief to the individuals or families who care for the patient daily. The care can be for an hour, overnight, several days or longer depending upon the situation.

In the majority of IHMC cases, less than 24 hours (two rather than three shifts) of nursing service is used. Other services are used very sparingly or not at all.

CASE MANAGEMENT AND QUALITY ASSURANCE

The IHMC waiver employs very well-defined case management and quality assurance procedures. Our review of a sample of case files indicates that these procedures are strictly followed.

Case Management Model

The initial client plan of care must be developed by the home health agency and approved and signed by the attending physician. This initial plan of care and the physician certification for level of care is documented as part of the eligibility and waiver entry process. As services are received, the contractor agency delivering the services arranges for a nurse supervisor to go to the home once a week to review the progress of the patient and the efficacy of the nursing and other services. Records of these visits are kept by the agency.

At least every 60 days, the plan of care is reviewed and updated, if necessary, by the home health agency and patient's attending physician. The attending physician must sign a re-certification for continued need for the acute level of care. The client and family are given an on-going choice as to whether to continue in the program or transfer to a hospital setting. IHMC program management monitors this case management process. In addition, Medi-Cal has a continuous utilization review (UR) plan in operation.

Quality Assurance Procedures

The Medi-Cal field offices conduct UR activities for IHMC cases. The purpose is to assure the quality, appropriateness and level of services provided to patients in the waiver program. The field office maintains an updated case record on all waiver clients that includes:

- Medi-Cal eligibility verification
- Progress reports, physician or nursing reports submitted with all treatment authorization requests (TAR), utilization review and on-site reports; and
- Client treatment plans and revisions.

Home visits after approval of the case are performed every six months. More frequent visits are made if necessary. These on-site visits are conducted by staff nurses and social service consultants. The review covers changing needs of the client, quality of nursing care, family relationship with the client and nursing staff,

acceptable safety and cleanliness in the home, and an evaluation of the active role of the private attending physician.

WAIVER EXPENDITURES

Exhibit 8-3 following this page shows waiver expenditures during the first year (July 1, 1983 through June 30, 1984) were approximately \$4,550,339; or \$57,648 per recipient per year.⁷ Expenditures in the following year were about \$7,091,127; or \$61,662 per recipient per year.⁸ These high recipient costs reflect the high cost of continuous 16-24 hour nursing services.

The following section presents the findings from our evaluation of the waiver program.

EVALUATION FINDINGS

The evaluation findings include an independent assessment of waiver service use and associated costs and an assessment of the cost-effectiveness of the waiver. The period of analysis covers the first waiver year from July 1, 1983 through June 30, 1984; and the second year from July 1, 1984 through June 30, 1985. Data used include draft HCFA 372s, responses from the La Jolla 1986 Annual Survey of State Waiver Programs, waiver program accounting data, abstracts from a sample of case records, IHMC data base files, and Medi-Cal paid claims data.

Cost of Waiver Services

The total cost of waiver services for 79 clients in FY 83/84 was roughly \$58,000 per recipient per year. During the second year expenditures increased to \$7,091,127. The second year reflected a growth in the program size to 115 people. The cost per recipient increased to \$61,662. The growth in cost per recipient was due to increased use of home health aides.

Exhibit 8-3 also shows how expenditures were distributed among services. Most of the cost of the waiver is due to nursing services. In comparison, very little use is made of the other services. Case management costs are those cost reimbursements to home health agency vendors and do not reflect administrative costs borne by Medi-Cal field office or headquarters personnel in performing case management duties. Given this more restrictive definition of case management, the costs are about \$600 per recipient per year.

Exhibit 8-3
Waiver Service Expenditures, By Service and Year

<u>California FY 83/84</u>				
<u>Rec. Waiver Yr</u>	<u>Waiver</u>	<u>Undupl.</u>	<u>Expend.</u>	<u>Expend/</u>
<u>IHMC Services</u>		<u>Expenditure</u>	<u>Recipient</u>	<u>P e r</u>
Skilled Nursing	\$4,398,603	75	\$58,648	NA
Home Health Aide	95,069	7	13,581	NA
Utility Coverage	667	2	334	NA
Case Management	<u>56,000</u>	<u>79</u>	<u>709</u>	<u>NA</u>
Totals	\$4,550,339	79	\$57,599	\$84,780
<u>California FY 84/85</u>				
Skilled Nursing	\$6,829,088	115	\$59,383	NA
Home Health Aide	207,280	9	23,031	NA
Utility Coverage	657	2	329	NA
Case Management	<u>54,102</u>	<u>113</u>	<u>479</u>	<u>NA</u>
Totals	\$7,091,127	115	\$61,662	\$87,816

Data for the first fiscal year were derived from a draft IHMC HCFA Form 372 report while the second year data were taken from the IHMC response to the La Jolla Waiver Survey (1985).

The last column in the Exhibit is expenditure per waiver year. This figure was derived from reported number of waived days of care on the HCFA 372 and the survey. This statistic is superior for comparing waiver costs per recipient since it standardizes the exposure period). In essence, it measures the average expenditure per "full time equivalent" year of waiver recipient coverage. The IHMC expenditure per waiver year in FY 83/84 was \$84,780 and increased to \$87,816 in FY 84/85. This

relatively high cost per recipient year of coverage reflects the high cost of the nursing care needed by IHMC clients.

Data on cost per service unit was obtained from a representative sample of case files. The average cost per unit of service was \$17 per hour for nursing services, \$9 per hour for home health aides, \$1.15 per day for utility coverage, and \$20 per week for case management services. These rates are fairly constant across IHMC clients throughout the State.

Cost-Effectiveness

The research design used to test cost-effectiveness of the IHMC waiver is a simple pre-post comparison (three months prior to waiver entry and three months of post-waiver entry Medi-Cal expenditures) of total Medi-Cal expenditures on a sample of 19 of the 167 waiver recipients enrolled in the program; i.e., a sampling fraction of 10-15 percent. The basic research question is "Did the waiver result in cost savings to Medi-Cal?" The findings discussed below investigate actual waiver costs for a random sample of recipients, related costs of regular State plan Medi-Cal services, and finally actual cost savings or losses for each client in the sample. To determine actual savings or losses per client, pre-waiver entry Medi-Cal costs were compared with the post-waiver entry costs for each client. Note that since California uses separate accounting systems for waiver and non-waiver services, to determine total cost after entry into the waiver it was necessary to add post-waiver entry traditional Medi-Cal expenditures to waiver expenditures for each client.

Waiver Costs

Exhibit 8-4 on the following page contains a breakdown of waiver costs for a sample of nineteen IHMC clients for the second waiver year (the period of July 1, 1984 through June 30, 1985). These cost data were obtained from the Medi-Cal IHMC accounting office and are actual costs incurred by waiver clients for California's second waiver year. Costs are broken down as nursing (representing all skilled and unskilled nursing) and "other" (representing case management, utility support, etc.). The number of weeks in the waiver stands for the number of weeks each client was active in the waiver for the waiver year. The cost per day statistic was computed by first summing the nursing and "other" costs to obtain a total waiver service cost for

Exhibit 8-4
Waiver Costs for the
Period of 7-1-84 to 6-30-85

	NURSING COSTS	OTHER COSTS	TOTAL COSTS	# OF WEEKS IN WAIVER	COST PER DAY*
1	\$1,481.60	\$40.00	\$1,521.60	1.7	\$126.80
2	\$35,780.16	\$0.00	\$35,780.16	18	\$283.97
3	\$37,117.49	\$280.00	\$37,397.49	24	\$222.60
4	\$5,751.40	\$60.00	\$5,811.40	10	\$83.02
5	\$62,981.12	\$361.90	\$63,343.02	34	\$266.15
6	\$10,915.10	\$200.00	\$11,115.10	12	\$132.32
7	\$14,914.90	\$180.00	\$15,094.90	9	\$239.60
8	\$29,669.81	\$260.00	\$29,929.81	13.6	\$315.05
9	\$38,925.91	\$0.00	\$38,925.91	21	\$264.80
10	\$12,751.44	\$80.00	\$12,831.44	9	\$200.49
11	\$11,609.52	\$0.00	\$11,609.52	9	\$190.32
12	\$3,472.50	\$0.00	\$3,472.50	2	\$267.12
13	\$10,018.80	\$280.00	\$10,298.80	20	\$73.56
14	\$23,599.96	\$300.00	\$23,899.96	15	\$227.62
15	\$65,684.93	\$5,372.63	\$71,057.56	41	\$247.59
16	\$43,541.52	\$500.00	\$44,041.52	24	\$262.15
17	\$68,979.81	\$0.00	\$68,979.81	31	\$317.88
18	\$44,928.00	\$0.00	\$44,928.00	52	\$123.43
19	\$65,602.02	\$0.00	\$65,602.02	33.1	\$282.77
Total:	<u>\$587,725.99</u>	<u>\$7,914.53</u>	<u>\$595,640.52</u>	<u>20.0</u>	<u>\$217.22</u>
Average:					

* Total cost divided by the number of weeks in the waiver,
divided by seven.

Source: Medi-Cal IHMC accounting data.

each client and then dividing this total by the number of weeks the client was in the waiver program. This weekly cost was then divided by seven to arrive at an average cost per day for each client.

As can be seen from the Exhibit, there is wide variation in the average cost per day figure, ranging from a low of \$73.56 per day up to \$317.88 per day for the most "expensive" client. The average cost per day for all nineteen clients is \$217.22. Note that this average cost per day is for waiver services only, and does not include other State plan (traditional) Medi-Cal service costs. State plan Medi-Cal service costs will be discussed below.

While there is also wide variation in nursing and the "other" costs, it must be noted that these figures are based on differing numbers of weeks in the waiver for each client. These differences in client exposure to the waiver services account for most of the cost variations.

As expected, most of the waiver dollars were spent on nursing services. It is interesting that seven of the nineteen clients incurred no "other" waiver costs, not even case management. We suspect that case management costs were bundled into the nursing rate by the home health agency instead of billed separately. Other data sources suggest that all clients receive case management services.

Exhibit 8-5 on the following page provides a brief narrative description of each client's Medi-Cal history before and subsequent to waiver entry.

Non-Waiver Medi-Cal Costs

Since the IHMC waiver program is intended to de-institutionalize clients, providing home care to patients that would otherwise require prolonged acute care hospital stays, pre and post waiver entry Medi-Cal expenditures for in-patient hospital stays and other services must be compared. The reasons for this comparison are: a) to determine whether inpatient hospital utilization decreases due to waiver entry, and 2) to more fully examine total waiver expenditures (which include expenditures for waiver services and non-waiver Medi-Cal services) and total pre-waiver Medi-Cal

Client #1

Inpatient costs for this client were fairly low prior to entry into the waiver (nearly \$11,000 dollars over a 4 month period, or \$91/day). While inpatient costs for this client were reduced after waiver entry (to \$11 per day), the reduction in traditional State plan Medi-Cal costs was not enough to offset this client's waiver cost of \$127 per day.

Client #2

Analysis of this client's utilization pattern suggests an archetypal waiver client. Prior to entry, this client experienced high inpatient expenditures (\$42,500 for a two month period) resulting in high total Medi-Cal cost per day prior to entry (\$790 per day). After entry, inpatient costs dropped to \$0, and cost per day for traditional Medi-Cal services dropped to \$83. Adding this client's waiver service cost of \$284 per day to the \$83 per day for traditional State plan services shows a clear reduction in the cost of care per day for this client after entry to the waiver (from \$790/day to \$367/day).

Client #3

Traditional State plan Medi-Cal costs for this client dropped slightly after entry into the waiver (from \$135 to \$132 per day). The pattern of utilization remained fairly constant; there was sporadic inpatient utilization prior to and after waiver entry, with inpatient utilization dropping slightly after entry into the waiver. After waiver entry, though, charges for "other" costs (ancillaries, etc.) showed an increase in utilization. Waiver service cost per day for this client was \$223 per day. As was the case for Client #1, the reduction in traditional State plan Medi-Cal costs was not enough to offset the waiver cost per day. Indeed, even if traditional State plan costs had been reduced to \$0 after waiver entry, this client would still end up with a higher cost per day subsequent to waiver entry.

Client #4

This client showed sporadic inpatient service utilization prior to waiver entry, and no inpatient utilization after entry; this resulted in a reduction of State plan costs from \$271 prior to entry to \$96 per day after waiver entry. Waiver service costs for this client were about \$83 per day, reflecting a high proportion of Licensed Vocational Nurse care relative to Registered Nurse care. For this client, the reduction in State plan costs was enough to offset the added cost of waiver services.

Client #10

This patient showed no inpatient costs but relatively high "other" costs prior to waiver entry. Traditional State plan utilization did reflect a reduction in service use and cost subsequent to waiver entry, but the added cost of waiver services was higher than the reduction in traditional Medi-Cal cost.

Client #11

There was almost no difference for this client between pre and post waiver entry traditional Medi-Cal costs (\$33 and \$29 per day respectively). While waiver expenditures for this client were relatively low (\$190 per day), this cost was substantially higher than the \$33 per day being spent by Medi-Cal prior to waiver entry.

Client #12

This client had one inpatient episode prior to waiver entry, and no inpatient episodes subsequent to entry. While traditional State plan Medi-Cal costs for this client were reduced subsequent to waiver entry (from \$124/day to \$50/day), the cost of providing waiver services was about \$270 per day. This resulted in an overall increase in cost from \$124 per day prior to waiver entry to \$320 per day after waiver entry.

Client #13

This client had only one inpatient episode prior to waiver entry. A review of the Medi-Cal paid claims history for this client indicates that the client was being served at home prior to waiver entry (the service provider listed on most claims was a Visiting Nurse Association). Subsequent to waiver entry, claims from the Visiting Nurse Association ceased, replaced by home health aides supplied as a waiver service. The overall result of this client being accepted into the waiver was a net increase of about \$41 per day in the cost of care for this client.

Client #14

This is another client that followed the intended pattern of deinstitutionalization of waiver clients. This client entered the waiver from a hospital setting and subsequent to waiver entry incurred no further inpatient costs. Cost of care for this client was reduced by more than 50 percent per month (from \$620 per day to \$270 per day).

Client #15

Client #15 was accepted into the waiver from a home setting; the majority of Medi-Cal claims prior to waiver entry were for outpatient examinations. Subsequent to waiver entry, costs for medical supplies drastically increased; this, combined with the nursing costs associated with waiver services, resulted in a monthly cost increase of more than 50 times (from \$200 per month to \$10,000 per month).

Client #16

This client had no inpatient utilization prior to or subsequent to waiver entry. Traditional State plan Medi-Cal costs for this client (both prior to and after waiver entry) were mainly for pharmacy charges. For this client, State plan utilization patterns showed very little change as a result of the provision of waiver services; in effect, the only difference for this client is the addition of nursing services being provided. The net effect of accepting this client into the waiver was an increase in cost to Medi-Cal from \$42 per day prior to waiver entry to \$320 per day after waiver entry.

Client #17

Client #17 is another example of the cost savings associated with proper targetting. This client was accepted into the waiver from an inpatient setting at a pre-waiver cost of about \$650 per day. After waiver entry there were no inpatient episodes, and cost per day was reduced by nearly 50 percent (from \$650/day to \$335/day).

Client #18

For this client, inpatient utilization and cost increased after entry to the waiver. Add to this the cost of nursing services under the waiver, and the net result is a cost increase to Medi-Cal of more than 50 percent per month (from \$10,070 to \$20,762 per month).

Client #19

Based on information provided by California IHMC staff, this patient entered the waiver from an inpatient setting and subsequent to waiver entry utilized no further inpatient hospital services. For this client, the waiver resulted in a cost reduction of approximately 40 percent (from \$15,969 to \$8,680 per month), a large saving to Medi-Cal.

expenditures. In order to more fully examine total costs of waiver clients it was necessary to include both waiver and non-waiver Medi-Cal costs. To include non-waiver Medi-Cal costs our analysis used Medi-Cal paid claims history files for a sample of nineteen IHMC clients. This was a sample drawn for us by IHMC headquarters staff. Exhibit 8-6 on the following page shows non-waiver Medi-Cal expenditures for our sample of 19 IHMC clients prior to and after entry to the waiver program. Cost data represent all paid claims for each of the recipients for specific time periods. The pre-waiver claims data average 3-4 months prior to waiver entry. Post entry claims average 2 months after waiver entry. Costs are broken down into "inpatient," which reflects all charges incurred in an inpatient setting, and "other," which includes all other Medi-Cal paid charges for non-waiver services.

The Exhibit shows inpatient costs, "other" costs (which include durable medical equipment and ancillary charges), total costs, number of weeks for which pre and post waiver entry Medi-Cal claims history data were available, and the average Medi-Cal cost per day for each recipient both prior to and after entry into the program. It is important to note that post entry Medi-Cal cost per day reflects only expenditures for traditional State plan Medi-Cal services. The cost per day statistic was computed by dividing the total Medi-Cal expenditure per recipient by the number of weeks of observations, and then dividing that number by seven.

Medi-Cal cost per day prior to waiver entry ranged from a low of \$0.00 per day up to \$790.05 per day. Clients #7 and #8 were not Medi-Cal recipients prior to waiver entry; cost of care for these two clients was previously borne by another funding source. The average pre-waiver entry Medi-Cal cost per day for the 19 clients was \$277.30. If we eliminate the two clients that were not prior Medi-Cal recipients, the average cost per day for the remaining 17 clients increases to \$309.92.⁹ It should also be noted that cost per day for three Medi-Cal clients exceeded the average hospital contract rate in California of \$525 per diem. This is because some hospitals in California are reimbursed at a higher daily rate. The per diem figure of \$525 is used for cost estimates when the actual in-patient cost of care for a prospective waiver client is unknown at the time of application.

The Exhibit shows that the average recipient cost per day for non-waiver Medi-Cal services (traditional State plan Medi-Cal services provided to waiver clients) also

Exhibit 8-6

Pre and Post Waiver Entry
Non-Waiver Medi-Cal Expenditures

	Inpatient Costs	Other Costs	Pre-Entry Total Costs	# of Weeks	Cost per Day*	Inpatient Costs	Other Costs	Post-Entry Total Costs	# of Weeks	Cost per Day*
1	\$8,237.87	\$2,732.11	\$10,969.98	17.1	\$91.42	\$0.00	\$165.42	\$165.42	2.0	\$11.82
2	\$39,765.00	\$2,739.57	\$42,504.57	7.7	\$790.05	\$0.00	\$6,375.52	\$6,375.52	11.0	\$82.80
3	\$14,400.00	\$2,702.84	\$17,102.84	18.1	\$134.67	\$3,600.00	\$348.82	\$3,948.82	4.3	\$131.63
4	\$19,050.00	\$5,560.37	\$24,610.37	13.0	\$270.44	\$0.00	\$4,872.03	\$4,872.03	7.3	\$95.53
5	\$62,220.00	\$6,551.46	\$68,771.46	21.9	\$449.49	\$0.00	\$1,388.38	\$1,388.38	3.3	\$60.36
6	\$33,789.07	\$1,806.90	\$35,595.97	9.9	\$515.88	\$32,550.00	\$3,085.14	\$35,635.14	11.3	\$451.08
7+	\$0.00	\$0.00	\$0.00	0.0	\$0.00	\$53,799.00	\$1,101.91	\$54,900.91	11.6	\$677.79
8+	\$0.00	\$0.00	\$0.00	0.0	\$0.00	\$0.00	\$139.10	\$139.10	0.6	\$34.78
9	\$452.30	\$69.72	\$522.02	0.1	\$522.02	\$16,336.70	\$2,249.36	\$18,586.06	20.1	\$131.82
10	\$0.00	\$12,704.30	\$12,704.30	14.7	\$123.34	\$0.00	\$1,479.43	\$1,479.43	9.1	\$23.12
11	\$0.00	\$2,017.53	\$2,017.53	8.7	\$33.07	\$0.00	\$1,763.25	\$1,763.25	8.7	\$28.91
12	\$7,350.00	\$1,926.99	\$9,276.99	10.7	\$123.69	\$0.00	\$646.57	\$646.57	1.9	\$49.74
13	\$1,530.00	\$2,890.02	\$4,420.02	15.1	\$41.70	\$0.00	\$682.23	\$682.23	6.0	\$16.24
14	\$43,810.00	\$2,049.23	\$45,859.23	10.6	\$619.72	\$0.00	\$3,213.60	\$3,213.60	10.9	\$42.28
15	\$0.00	\$561.00	\$561.00	12	\$6.68	\$0.00	\$5,639.51	\$5,639.51	8	\$100.71
16	\$0.00	\$3,251.81	\$3,251.81	11	\$42.23	\$0.00	\$5,071.89	\$5,071.89	12	\$60.38
17	\$11,828.00	\$10,857.98	\$22,685.98	5	\$648.17	\$0.00	\$1,533.98	\$1,533.98	12	\$18.26
18	\$18,581.92	\$9,228.28	\$27,810.20	12	\$331.07	\$40,402.79	\$6,568.83	\$46,971.62	12	\$559.19
19	\$44,100.00	\$0.00	\$44,100.00	12	\$525.00	\$0.00	\$218.70	\$218.70	12	\$2.60

Total:	\$305,114.16	\$67,650.11	\$372,764.27			\$146,688.49	\$46,543.67	\$193,232.16		
Average:				10.5	\$277.30				8.6	\$135.74

* Total costs divided by the number of weeks, divided by seven.

+ Prior cost of care was not paid by Medi-Cal for these two cases.

Source: Medi-Cal claims detail reports.

varies widely; from \$2.60 per day up to \$677.79 per day. In the latter case, the high level of inpatient costs after entry to the waiver accounts for the higher than usual average cost per day. The average cost per day for the 19 clients was \$135.74. If we again exclude the two "aberrant" cases from the analysis, the average net Medi-Cal cost per day for all clients (17 clients) drops to \$109.79. Note that even though non-waiver Medi-Cal expenditures may be reduced for a client subsequent to waiver entry, this reduction must be great enough to offset the increase in total cost of care resulting from the provision of waiver services.

As expected, the majority of IHMC clients (14 of 19) show no expenditures for inpatient care after waiver entry, and the five clients that do show inpatient hospital utilization account for the five highest cost per day figures.

The analysis shows that Medi-Cal non-waiver service expenditures did decline after the average client entered the waiver program. If we look at all 19 clients, the reduction in average cost was from \$277 to \$136 per day; excluding the clients where the cost of care was shifted from a different payment source, the reduction in average cost per day was even greater, from \$309 to \$110 per day. This is consistent with the theory that the waiver is effective in reducing Medi-Cal expenditures for inpatient hospitalization. However, not all clients experienced a reduction in non-waiver Medi-Cal expenditures. For 5 clients, per day Medi-Cal expenditures actually went up. It is not clear how these clients gained entry to the waiver program given the cost-effectiveness eligibility criterion.

Total non-waiver Medi-Cal expenditures for the sample show a reduction of almost fifty percent, from \$372,764 to \$193,232 over the limited period of observation. Again excluding the two "aberrant" cases, the reduction becomes even greater, from \$372,764 to \$138,192.

Comparison of Total Medi-Cal Costs Before and After Waiver Entry

To test the hypothesis that entry into the IHMC waiver will result in reduced total Medi-Cal expenditures, total waiver service cost (waiver service cost plus non-waiver Medi-Cal service cost) must be compared with pre-waiver entry Medi-Cal expenditures. From the previous exhibits we have seen that the average cost per day

for waiver services and non-waiver post-entry Medi-Cal services was \$217.22 and \$135.74 respectively; and that the average cost per day for Medi-Cal services prior to waiver entry was \$277.30.

Exhibit 8-7 on the following page compares, for the sampled 19 clients, the pre-waiver Medi-Cal cost per month with the post waiver entry total Medi-Cal costs per month. The difference is net savings or loss to Medi-Cal. Total cost per waiver month for each client was computed by adding the waiver service cost per day (from Exhibit 8-4) to the post waiver entry non-waiver Medi-Cal cost per day (Exhibit 8-6) and multiplying this number by the average number of days in a month (30.41667). Pre-waiver entry Medi-Cal cost per month was computed in the same way using the pre-waiver entry Medi-Cal cost per day (Exhibit 8-6). The savings (or loss) per recipient month was computed by subtracting the total post waiver entry Medi-Cal cost per month (including cost of waiver services) from the pre-waiver Medi-Cal cost per month.

Recipient cost per month for pre-waiver entry Medi-Cal services ranged from \$0.00 to \$19,715, with the average cost per month for the sample being \$8,434. Total Medi-Cal cost per waiver month ranged from \$2,732 per month to \$27,904 per month, with an average cost per waiver month for the sample of \$10,736. The range of savings (losses) shows the largest loss per month being \$27,904 and the highest savings per month being \$10,640. The average for the sample is a net loss of \$2,301.43 per recipient per month.

Conducting the same analysis without the two "aberrant" cases results in a lessening of the loss but does not change the overall conclusion that the IHMC waiver, for the study sample of recipients, appears to be a net loss to Medi-Cal. The average pre-waiver Medi-Cal cost was \$9,427. The average post-waiver cost was \$9,732; the difference results in a net loss of \$305 per recipient per month.

Application of a statistical test of significance to the above findings indicates, however, that the differences in the pre and post waiver average Medi-Cal costs is not statistically significant. That is, given the size of the standard deviation the observed differences could have resulted from pure chance. A larger sample size

Exhibit 8-7

Monthly Savings to Medi-Cal for Pre - Post Waiver Entry Expenditures

	Pre-Waiver Cost per Month**	Cost per Waiver Month*	Savings (Loss)
1	\$2,780.59	\$4,216.23	(\$1,435.64)
2	\$24,030.62	\$11,155.88	\$12,874.75
3	\$4,096.15	\$10,774.54	(\$6,678.39)
4	\$8,225.99	\$5,430.90	\$2,795.10
5	\$13,671.89	\$9,931.39	\$3,740.50
6	\$15,691.46	\$17,745.10	(\$2,053.63)
7+	\$0.00	\$27,903.97	(\$27,903.97)
8+	\$0.00	\$10,640.53	(\$10,640.53)
9	\$15,878.11	\$12,063.80	\$3,814.31
10	\$3,751.67	\$6,801.39	(\$3,049.72)
11	\$1,006.01	\$6,668.12	(\$5,662.11)
12	\$3,762.34	\$9,637.57	(\$5,875.23)
13	\$1,268.32	\$2,731.61	(\$1,463.29)
14	\$18,849.80	\$8,209.55	\$10,640.25
15	\$203.14	\$10,593.91	(\$10,390.77)
16	\$1,284.54	\$9,810.34	(\$8,525.80)
17	\$19,715.20	\$10,224.29	\$9,490.91
18	\$10,070.16	\$20,762.86	(\$10,692.70)
19	\$15,968.75	\$8,680.03	\$7,288.72
Average:	\$8,434.46	\$10,735.89	

Savings per
recipient month. (\$2,301.43)

* Waiver cost per month was computed by adding waiver service cost per day to post-waiver entry Medi-Cal cost per day, and multiplying the sum by 30.41667.

** Pre-waiver entry cost per day was computed by multiplying the Medi-Cal cost per day by 30.41667.

Source: IHMC accounting data and Medi-Cal claims detail reports.

would be necessary to attain definitive results. Although our findings cannot be used to assert that the IHMC waiver is not budget neutral, neither do they support the waiver application assertion that the program would save large sums of money to Medi-Cal for each recipient. The latter is clearly not true.

SUMMARY

We stress that these negative findings are preliminary. In order to be more conclusive, a larger sample should be taken to ensure statistical significance and minimize the possibility that our sample of clients was somehow biased. Our results do not in any way deter from the value of the waiver services to the clients and their families. The waiver program as a whole is founded on sound concepts of service delivery and administrative efficiency. However, cost-effectiveness claims for the program need to be re-examined on a client-by-client basis in order to present the financial outcomes of the waiver accurately. This effort, however, is beyond the scope of this evaluation contract.

Consideration should be given to describing the waiver program in a slightly different perspective from that which is presented in the waiver application. The waiver application presents IHMC as a program focused on deinstitutionalization of clients from expensive prolonged hospital stays to lesser expensive in-home services. This depiction of the waiver led us to a research design aimed at testing the evidence for absolute reductions in Medi-Cal expenditures.

A different view of waiver outcome could be that IHMC does result in real cost savings to Medi-Cal for some clients; but for others the financial outcome is better described in terms of the avoidance of future Medi-Cal costs. For example, for those clients having little or no inpatient expenditures prior to waiver entry, IHMC may avoid the financial burden of future Medi-Cal inpatient expenses by allowing the client to remain at home rather than transfer to a hospital for prolonged care. Although this argument is harder to substantiate, it may be a more accurate presentation of the waiver's true cost-effectiveness.

ENDNOTES

1. California Department of Health Services. Request for In-Home Medical Care 2176 Waiver, January, 1983, page 2
2. Health Care Financing Administration, Region IX. 1986 Medicaid Program Review Report, California Title XIX (Medi-Cal) Program, Department of Health Services, Home and Community-Based Services Waiver, In-Home Medical Care. February 14, 1986
4. Telephone conversation with Marilyn Jones, Program Administrator, June 24, 1986.
5. California Department of Health Services, Field Services Branch. In-Home Medical Care Services Procedure Manual, December 1985
6. This internal file is maintained by Department of Health, Medi-Cal Field Services Branch, and contains records on all IHMC clients. Records include age, sex, primary and secondary diagnosis, services authorized, etc.
7. Unapproved Draft HCFA 372 for FY 83/84.
8. La Jolla Waiver Survey (1985)
9. Average cost per day was computed by summing the cost per day for each recipient and then dividing by the number of recipients.

CHAPTER NINE

THE GEORGIA ALTERNATE HEALTH SERVICES PROGRAM

This chapter provides a case study of the Georgia waiver care program for the elderly and disabled. The study describes the history and evolution of community care in Georgia, provides a description of the waiver program and its clients, and presents our findings on evaluation issues such as client targeting, service costs, cost-effectiveness, and quality of care. The study is based on four site visits to the Georgia waiver program and data obtained from client files, Medicaid and Medicare paid claims, administrative files at the Health Care Financing Administration, and from data collected for the evaluation of the demonstration which preceded the waiver program. Due to the limited availability of data, the study specifically addresses the program and its clients during the first year and one-quarter of operation as a Section 2176 Home and Community-Based Care waiver program (October 1, 1981-December 31, 1982).

BACKGROUND

Long Term Care Demonstration Project

The Georgia Alternate Health Services program (AHS) began as a HCFA-funded Section 1115 demonstration project in July of 1976. The program was developed as an alternative to institutionalization for an aged, chronically ill population who, without the services provided in the demonstration, would be placed in nursing homes. The objectives of the demonstration were to provide the care necessary to maintain these individuals in the community on as independent a level as possible, and to accomplish this in a cost-effective manner.¹

In the mid-seventies the state of Georgia was faced with rapidly increasing Medicaid long-term care costs. Health cost inflation was attributed in part to medically inappropriate nursing home placements which, in turn, were contributed to by the lack of a health-related social services and community support system. There was a relatively poor supply of home and community-based services in the AHS counties, particularly outside of Atlanta.

The AHS demonstration project was administered by the Division of Medical Assistance, the single state Medicaid agency. It served 17 urban, suburban and rural counties in the Northeast Georgia and the Atlanta metropolitan area. The target group for the project was defined as individuals age 50 and older, eligible for Medicaid and certifiable for SNF/ICF care (i.e., meeting Georgia's pre-admission screening criteria for SNF/ICF care). The target group included persons waiting for Medicaid nursing home placement, those "at risk of institutionalization" (i.e., those who had not applied for nursing home entry but were eligible for Medicaid nursing home placement) and Medicaid nursing home residents who could be deinstitutionalized with community support.

The Section 2176 Home and Community-Based Care Waiver Application

Shortly after publication of the initial regulations governing Section 2176 waiver applications and programs in October 1981, the State of Georgia submitted an application to the Secretary of HHS for Section 2176 Home and Community-Based Care waivers to convert the AHS program from a Section 1115 demonstration project to a Home and Community-Based Care waiver program and to expand the program to statewide operation. As part of the waiver review process at the Health Care Financing Administration (HCFA), an extensive negotiation period and exchange of questions and answers between DMA and HCFA ensued, culminating in submission of revised waiver program cost estimates and assurances of statutory requirements which were acceptable to HCFA.

A significant impediment to approval of the Section 2176 waiver application had been the findings from the evaluation of the demonstration project. An extensive evaluation of the Section 1115 demonstration had been conducted on 819 AHS clients who were enrolled in the program between January of 1977 and July of 1979 and a group of 257 Medicaid eligibles found eligible for AHS, but assigned to the control group by random draw. The evaluation results showed that total combined Medicaid and Medicare costs were higher for AHS clients than the control group, at a statistically significant level. In general, the difference in costs between the two groups equalled the cost of the AHS services alone. In other words, AHS services appeared to be supplementing rather than substituting for other services provided under Medicaid and Medicare.

The rates of institutionalization for both groups were found to be roughly equal: about 15 percent. Without the home and community services given to the treatment group, the vast majority of the control group members, some 85 percent, were able to stay out of nursing homes over the 24 month follow-up period. A similar proportion of the AHS enrollees did not enter nursing homes. The services provided by the program seemed to have little effect in reducing the risk of institutionalization. In addition, the fact that only 15 percent of the control clients were actually admitted to a nursing home speaks poorly of the screening procedures used in the project which required individuals to be in "imminent" risk of going to a nursing home.²

In reviewing the application, HCFA was concerned about its potential cost-effectiveness, since the AHS demonstration project had operated and provided services almost identical to the proposed 2176 waiver program. Georgia's response to HCFA's concerns stated that:

"...the project findings indicated the importance of targeting such services to individuals who would otherwise be likely to enter a nursing home. The proposed 2176 waiver program would place more emphasis on targeting ... than the 1115 project did".³

In addressing HCFA's concerns, Georgia identified three major differences between the AHS demonstration and the proposed waiver program:

- Emphasis on targeting services to nursing home applicants, such as by having AHS staff identify potential clients by reviewing applications for Medicaid preadmission certification of nursing home medical necessity, to improve targeting effectiveness;
- Reduced screening costs through streamlining the process, shortening the forms, and using caseworkers in lieu of medical social workers on the assessment teams; and,
- Excluding home delivered meals from the Home Delivered Services package to reduce waiver service costs (and obtaining them from other funding sources such as Title III and Title XX).

The Georgia response also noted that the program would serve only those waiver applicants whose monthly waiver service costs would not exceed 75% of the average

monthly nursing home rate as contrasted to a limit of 100% of the nursing home cost under the demonstration. This response, together with the submission of written assurances and revised projections of waiver costs and utilization, overcame HCFA's concerns. On June 7, 1982 Georgia's Home and Community-Based Care Waiver program was approved, retroactive to October 1, 1981.

Description of The Waiver Program

On October 1, 1981 the research-oriented AHS project officially ended and a new AHS program of home and community based care under the Section 2176 waiver authority began. The basic program design from the demonstration was retained. AHS continued to provide three distinct modes of service:

- (1) Adult Day Rehabilitation (ADR);
- (2) Home Delivered Services (HDS); and
- (3) Alternative Living Services (ALS).

Beginning in December 1981, the AHS program was expanded from the two regions served by the demonstration (Atlanta and Northeast) into almost every region of the State. As of June 1982, AHS was operating in 10 of the 18 Regions of Georgia, and the number of assessment teams and AHS providers grew in response to growing program enrollment. The expansion process was completed and AHS services became available statewide in August 1984. In view of the results reported below, perhaps the most important change occurred in 1985. The program began mandatory screening of all nursing home applicants in that year. As of September, 1985, the program had provided services to 5,630 people.⁴ (The results of the waiver evaluation, reported below, apply only to the period 10/1/81 - 12/31/82).

The administrative approach utilized by AHS during the four years of the Section 1115 demonstration was, with one exception, maintained through the first three years of the Section 2176 waiver program. The change occurred in October of 1982, when much of the management of the program was shifted from the Medicaid agency, The Department of Medical Assistance (DMA), to the Office on Aging in the Department of Human Resources (DHR). This shift was mandated by the state's Community Care

for the Elderly Act of 1982 which was aimed at promoting the integration of services for the State's elderly population. Among other things, the Act:

- Required the AHS program to be implemented statewide;
- Designated the Office on Aging as the lead agency;
- Required preadmission screening of all Medicaid nursing home applicants to determine appropriateness of AHS as an alternative; and
- Changed the name of the program to the Community Care Services Program.

Although transfer of lead agency responsibility to the Office on Aging was quickly implemented, the other changes were not fully implemented for several years.

Most of the staff involved in the program's administration, including assessment staff, were consequently transferred to the Office on Aging. DMA retained responsibility for provider certification, negotiation of payment rates, claims payment, and data reporting requirements. DMA also took responsibility for preadmission level of care certification, and utilization review/quality assurance activities under a contract with the Georgia Medical Care Foundation (GFMC), the physician organization which also operated the Professional Standards Review Organization in the Medicare program. DHR assumed responsibility for development of waiver program policy (in consultation with DMA), development and evaluation of new AHS providers, program promotion and case finding, screening of AHS applicants, oversight of case management and provider services, coordination between providers and day-to-day management of the program.

The only waiver services provided directly by DHR are those provided by its Assessment Teams. The Assessment Teams are composed of an RN and a social worker. They conduct case finding, intake screening, assessment of potential clients, initial recommendation of service needs, referral to service providers, periodic oversight of case management through monthly team conferences involving all the providers in an area, and review of any major changes in care plans which have been

requested by the providers. The AHS providers take the lead in devising individual care plans for AHS clients and provide waiver services plus day-to-day case management through a case coordinator on the staff of the provider.

As noted earlier, three types of service packages are available in the AHS program: Adult Day Rehabilitation (ADR), Home Delivered Services (HDS), and Alternate Living Services (ALS). Each is offered by a different type of provider. Generally waiver clients receive services from one of these packages, under a care plan designed both to meet the specific needs of the individual and to serve as an alternative to institutional care. Clients can and do receive combinations; however, the total monthly cost must be less than 75% of the cost of nursing home care. The services offered in each of the three packages are described below:

Adult Day Rehabilitation - Provision of health and health-related support services in a central facility on a daytime outpatient basis to chronically ill or impaired individuals. Services targeted to persons who cannot live independently but do not require 24-hour care. All ADR services are supervised by a registered nurse, and include nursing services with an emphasis on monitoring health and teaching positive health measures, medical social services, physical and occupational therapies, one meal per day, and supervision of personal care. Planned therapeutic activities are a major component of the service, serving to stimulate mental activity, communication and self expression. They include arts and crafts, discussion groups and musical, educational and cultural programs. Transportation to and from ADR is provided as required. ADR providers are typically non-profit community organizations that often also provide Adult Day Care of a more social orientation with funding from Title III and/or Title XX.

Home Delivered Services - Provision of home health services and personal care services on an intermittent basis to chronically ill or impaired persons in their homes. HDS services include skilled nursing services, physical and occupational therapies, home health aide services, personal care services, and medically-related transportation. The typical provider is a Medicare and/or Medicaid certified Home Health Agency.

Alternative Living Services - Provision of 24-hour supervision, medically-oriented personal care and health-related support services in a residential setting other than the client's own home. The two basic means of providing clients with ALS services are through family personal care homes and group personal care homes. The provider organizations are usually local voluntary mental health agencies. They are responsible for recruiting suitable home owners and group home operators, monitoring the care and making the payments for the supervision and care of the ALS waiver clients. Several levels of ALS are available with payment rates varying accordingly, ranging from general supervision and limited assistance with personal care to daily intensive personal care. Clients are responsible for paying for room and board. One unique aspect of ALS is its role in deinstitutionalization. Persons who have been living in nursing homes are often fearful of the unknowns and challenges of returning to the community. In order to allay these fears, ALS offers nursing home residents a 1-2 week trial placement, during which time the nursing home bed is held in case the client decides not to continue in AHS.

Eligibility and Screening Criteria

The AHS waiver program is targeted toward two groups at risk of needing institutional care: (1) the elderly aged 65 and over, and (2) the physically disabled under 65 years of age. All applicants to AHS are screened and assessed by a DHR assessment team to see if they meet the requirements for entry into the program. Referrals to the program are most often from home health agencies (eg., when a client is about to use up his/her Medicare or Medicaid benefit), followed by hospitals, physicians and social service agencies. A screening form is used to collect as much information as possible over the phone from the initial referral regarding physical condition, Medicaid eligibility and type(s) of services needed and to weed out persons who are clearly ineligible. Most screen-outs are persons who are not Medicaid eligibles. The program is also very cautious about referrals of persons leaving nursing homes because many will lose their Medicaid eligibility. Persons with alcoholism or mental health problems are ineligible and are referred to local mental health programs.

The next step is a face to face visit with the potential client and the primary informal caregiver, usually conducted in the client's home within 2-3 days of the

referral. Most applicants are anxious to avoid nursing home placement and occasionally the assessors find it necessary to counsel the potential client to go to a nursing home. The assessment includes physical problems, functional limitations and the adequacy of the support system. About 60% of clients are said to have someone providing informal care, but often the care is limited or the caregiver is unable to provide physical care (eg., bathing and turning) or manage the oxygen or catheter care.

If the decision is to admit the applicant, then the applicant must be certified as meeting Georgia's medical criteria for Medicaid coverage of nursing home care. A simple one page form is used for both waiver and nursing home applicants. It requests medical and functional status information, and is sent to the potential client's physician for completion. When the form, called DMA-6, is returned to AHS, the information is called into a nurse reviewer at the area PSRO - the Georgia Medical Care Foundation (GMCF) - for level of care approval. GMCF uses the same criteria for the waiver applicants as are used for nursing home applicants. Indeed, the process is the same, the reviewer does not know whether the applicant was seeking nursing home or AHS services. Only a few cases are not certified by GMCF, apparently because the requirements for certification are generally understood and applications not meeting these criteria would not be submitted. The use of an independent organization to perform level of care certification for AHS clients is a feature introduced with the start of the waiver program.

Once the level of care certification is obtained, the client is referred to an AHS provider. The client participates in the choice of provider. A Provider Notification Form, giving a general description of the services to be provided, is prepared by the assessment team and sent to the provider (along with the DMA-6). The assessment team is limited to the diagnoses listed on the DMA-6 in terms of the needs that it can attempt to fill. The provider then conducts a home assessment visit and prepares a care plan. At this point, the provider will usually initiate services. The care plan is updated at 60 day intervals by the provider. The provider must obtain the client's physician's approval for the new care plan. In addition, during the time covered by this research, the GMCF performed utilization reviews three times yearly (more often if the reviewer or program believed it necessary) for 100% of the program's clients.

In July, 1984 the Medicaid program took over this activity because they found that GMCF issued few punitive actions.⁵

It is important to point out that during the time period covered by this evaluation (reported below), October 1981 - December 1982, mandatory preadmission screening of Medicaid nursing home applicants for potential placement in the waiver program was not in operation. As noted earlier, this did not happen until July, 1985. Thus, the screening process did not permit the identification of nursing home-bound Medicaid eligibles who could potentially be diverted into home and community-based care. The program relied instead on hospital discharge planners, home health agencies, physicians and others to identify and refer persons at risk of nursing home placement.

Utilization Review/Quality Assurance Process

Periodic utilization review (at least three times per year) of all clients receiving waiver services and all providers of services ensures that each client receives necessary and appropriate care of acceptable quality. Until July 1, 1984, this review was conducted through a contractual agreement with the Georgia Medical Care Foundation. The review activities were performed by RNs using both care records and, in about half of the reviews, face-to-face visits with clients. Approximately 75% of clients were assessed quarterly. The reviews specifically address:

- Appropriateness and necessity of services in the care plan;
- Whether the services are actually delivered;
- Whether the care plan continues to be appropriate;
- Whether services provided by multiple providers are adequately coordinated;
and
- Whether proper certifications are in the client's file.

Any problems which have been identified are documented and a copy is provided to the AHS provider agency involved. The provider must respond in writing and address any systematic problems by submitting a plan of corrective action. In addition to its function as a utilization review and quality assurance mechanism, the review process also serves to meet the requirement for periodic recertification of need.

According to both DMA and GMCF, one of the most common problems found during the reviews is a lack of documentation, e.g. physician re-certification of care plan is missing. Other problems identified have been a lack of coordination between the multiple providers of waiver services and, in some instances, a failure to fully identify patient care needs.

This concludes the description of Georgia's waiver program. The sections which follow provide a quantitative, descriptive view of the AHS program clients' characteristics, their service use and costs in the waiver program and an assessment of the program's ability to meet the budget neutrality objective.

WAIVER PROGRAM CLIENT CHARACTERISTICS, UTILIZATION AND EXPENDITURES

This next section provides a descriptive analysis of the population who were served by the AHS program during the first year and one-quarter of the waiver. The analysis begins with an examination of the composition of the clients in terms of demographic and health status characteristics. This is followed by an examination of the waiver clients' utilization of waiver and Medicaid services and the costs of these services. The analysis ends with an examination of how care costs and use vary with client characteristics.

Data Sources

The total number of persons ever enrolled in the Georgia waiver program from its implementation in October 1981 through December 1982 is estimated to be 1770, based on a hard copy roster of enrollees maintained by the AHS central office in Atlanta. Of the 1770 on the enrollment roster, we were able to match 1628 to a

complete research file of Georgia Medicaid eligibles and paid claims. Of these, 1241 people had at least one claim during the study period. This file is the primary data source used in the analysis of enrollment, cost and utilization. These data were incomplete for some clients, resulting in varying numbers of observations in the tables which are presented. Finally, since many enrollees participated only for one or two quarters, we limited our examination of waiver costs to quarters of actual participation for each enrollee.

The difference between the number enrolled and the number who actually receive waiver services is consistent with both the program design and with data reported by Georgia to HCFA for the first waiver year. From October 1981 through September 1982, 584 persons were offered waiver services but "refused to accept the services provided under the waiver," either before or after placement of their names on the roster and referral to a provider. The enrollment roster includes those persons accepted by the assessment teams who have been referred to providers.

In order to obtain information about the medical or functional status of the clients, we located as many DMA-6 (assessment) forms as possible for persons enrolled during the first 15 months of program operation. (As noted earlier, the DMA-6 form provides the information which is used to determine whether an individual meets the criteria for Medicaid coverage of nursing home care.) We were able to locate 990 DMA-6s, of which 792 were codable and had Social Security numbers matching persons on the primary file. Exhibit 9-1 summarizes the numbers of observations in total and in the matched DMA-6 datasets.

The matched DMA-6 file has assessment data for over 65% of those admitted in the last two quarters, and data for 41% of first quarter admittees and 55% of second and third quarter enrollees. For those persons who were carried over from the demonstration to the waiver, about 20% of the waiver population, assessment data similar to the DMA-6 assessment data was obtained from the demonstration's data tapes. The DMA-6 group and the total waiver population are almost identical in terms of the distributions of age at admission and sex. The DMA-6 group's average waiver service costs were 3.6% lower than the average for the population. Thus, it

Exhibit 9-1

Composition of Study Populations
in Analysis of Client Characteristics and Waiver Use

	<u>Study Group</u>	
	<u>Full Sample</u>	<u>With DMA-6 Data</u>
Number of Waiver Enrollees	1628	792
Period of Initial Enrollment:		
Pre Waiver (1977 - Sept. 1981)	317 (19.5%)	11 (1.4%)
Waiver (Oct. 1981 - Dec. 1982)	1281 (78.7%)	780 (98.5%)
Unknown Enrollment Date	30 (1.8%)	1 (0.1%)
Number of Waiver Recipients	1241 (76.4%)	589 (74.4%)
Active Waiver Participation:		
Number of Quarters	1729	1149
Quarters per Waiver Recipient	1.4	2.0

Source: GEORGIA WAIVER RESEARCH FILE (from AHS Enrollment Roster and Tape-to-Tape Georgia Medicaid Eligibility File), La Jolla Management Corporation, 1986.

appears that the DMA-6 group is representative of the total population of waiver enrollees.

In order to supplement the analysis with information on use and expenditures in a form which is readily comparable to the data routinely reported by all waiver programs, we also analyzed the State of Georgia's Annual Report of Waiver Expenditures and Use (HCFA-372) for the first waiver year. Although both the research data file and the HCFA-372 are based on date of service, differences in cut-off dates for paid claims, editing criteria and definitions are likely to result in differences in the statistics reported from the two sources.

Waiver Client Characteristics

The analysis of the waiver enrollees in terms of their age, sex, health and functional impairments suggests that the program is targeting on a highly dependent and impaired population, not unlike those who use nursing homes. As can be seen in Exhibit 9-2, the Georgia waiver program enrolls a predominantly elderly, female, and black population. More than three-quarters of waiver clients are over 65 years of age, and nearly one-fifth are 85 or older. Female recipients outnumber male enrollees by a three-to-one ratio.

Exhibits 9-3, 4 and 5 display the extent and nature of functional dependency and mental, behavioral and physical impairments among waiver clients. It should be kept in mind that while the extent of impairments and dependency in Activities of Daily Living indicate the need for care and assistance, such as is provided in nursing homes and home and community-based care programs, they do not necessarily indicate that nursing home placement is either required or highly probable. The issue of risk of nursing home placement is examined in a latter section using an appropriate research approach.

As shown in Exhibit 9-3, over 90% of the AHS enrollees require assistance in bathing, with 25% totally dependent on others. Over three-quarters need help in ambulation, dressing and with transfers. Thirty percent need assistance in eating and a similar proportion need help in using their wheel chairs.

Exhibit 9-2

Percentage Distribution of Waiver
Clients by Age, Sex, and Race
(N = 1542)

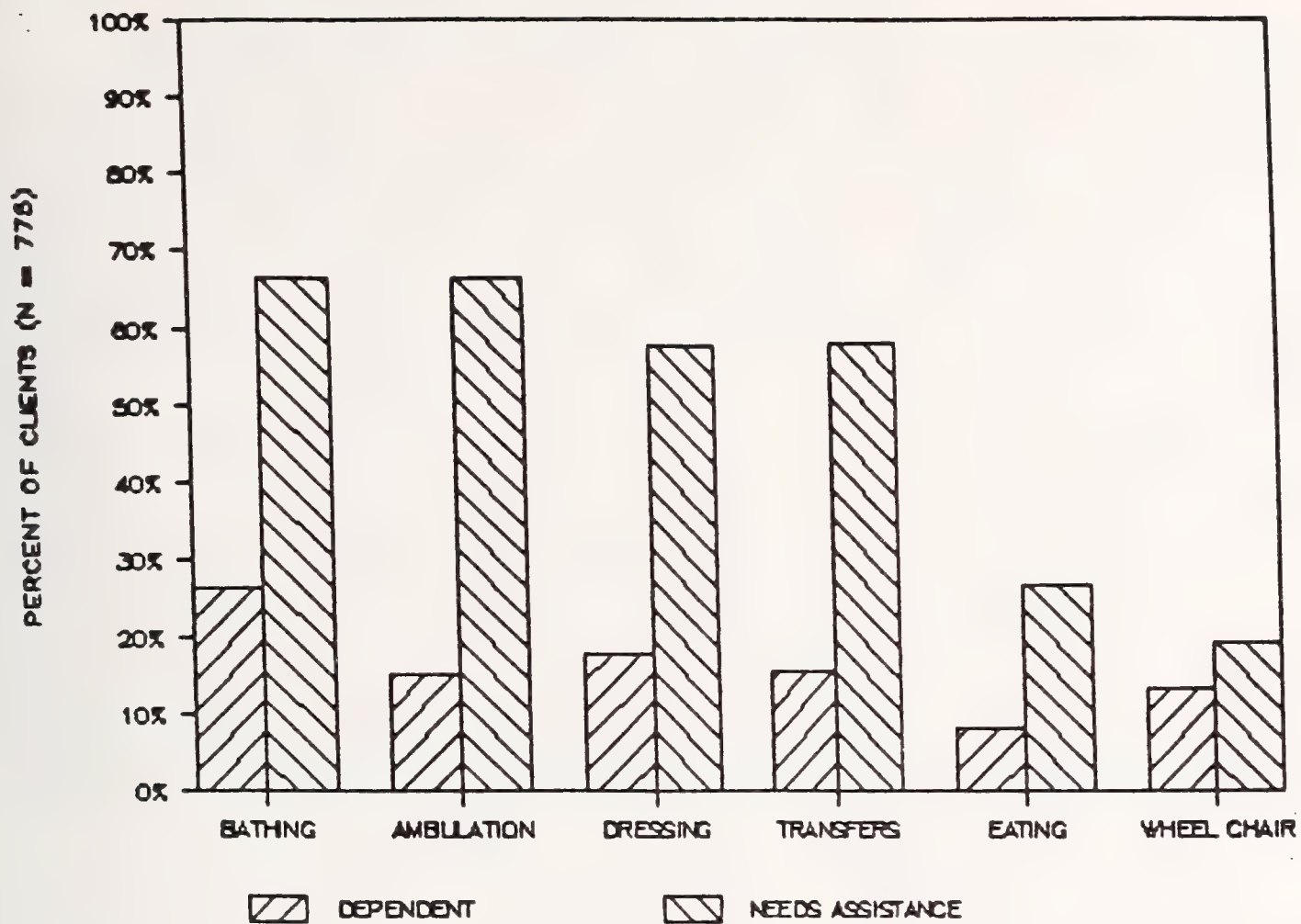
<u>AGE</u>	<u>PERCENT OF WAIVER CLIENTS</u>
0 - 44	7.0%
45 - 64	16.9%
65 - 74	24.1%
75 - 84	33.0%
85+	19.0%

<u>SEX</u>	<u>PERCENT OF WAIVER CLIENTS</u>
MALE	22.9%
FEMALE	77.1%

<u>RACE</u>	<u>PERCENT OF WAIVER CLIENTS</u>
BLACK	51.9%
WHITE	48.1%

Source: GEORGIA WAIVER RESEARCH FILE (from AHS Enrollment Roster and Tape-to-Tape Georgia Medicaid Eligibility File), La Jolla Management Corporation, 1986.

FUNCTIONAL LIMITATIONS



Source: GEORGIA WAIVER RESEARCH FILE (from AHS Enrollment Roster and Tape-to-Tape Georgia Medicaid Eligibility File), La Jolla Management Corporation, 1986.

Exhibit 9-4 shows the relationship between age of the waiver enrollees and functional limitations in Activities in Daily Living (ADL) in terms each person's most severe ADL dependency. This four point scale represents a compressed version of the well-known Activities of Daily Living (ADL) Scale. (For clarity, the graph shows only the first three groups, those with ADL limitations.) Persons are characterized as dependent if they were recorded as either dependent or needing assistance; mobility dependent persons include those who are bedfast or wheel chair users.) The findings reveal that Georgia waiver clients of all ages are characterized by a significant degree of impairment in their ability to carry out basic activities. Specifically, 57.5% were placed in the most severe dependency level, requiring assistance in toileting and/or eating. Toileting and/or eating dependency is even more common in the group of waiver enrollees under age 45. Help in bathing and/or dressing is needed by 37.6%. This second level of severity is most frequent for persons age 65 and older. Less than three percent required help in mobility only. (It should be noted that the great majority of persons placed in the two most severe categories also need assistance in mobility.) Only 2.7% of the waiver clients required no help at all in terms of ADLs.

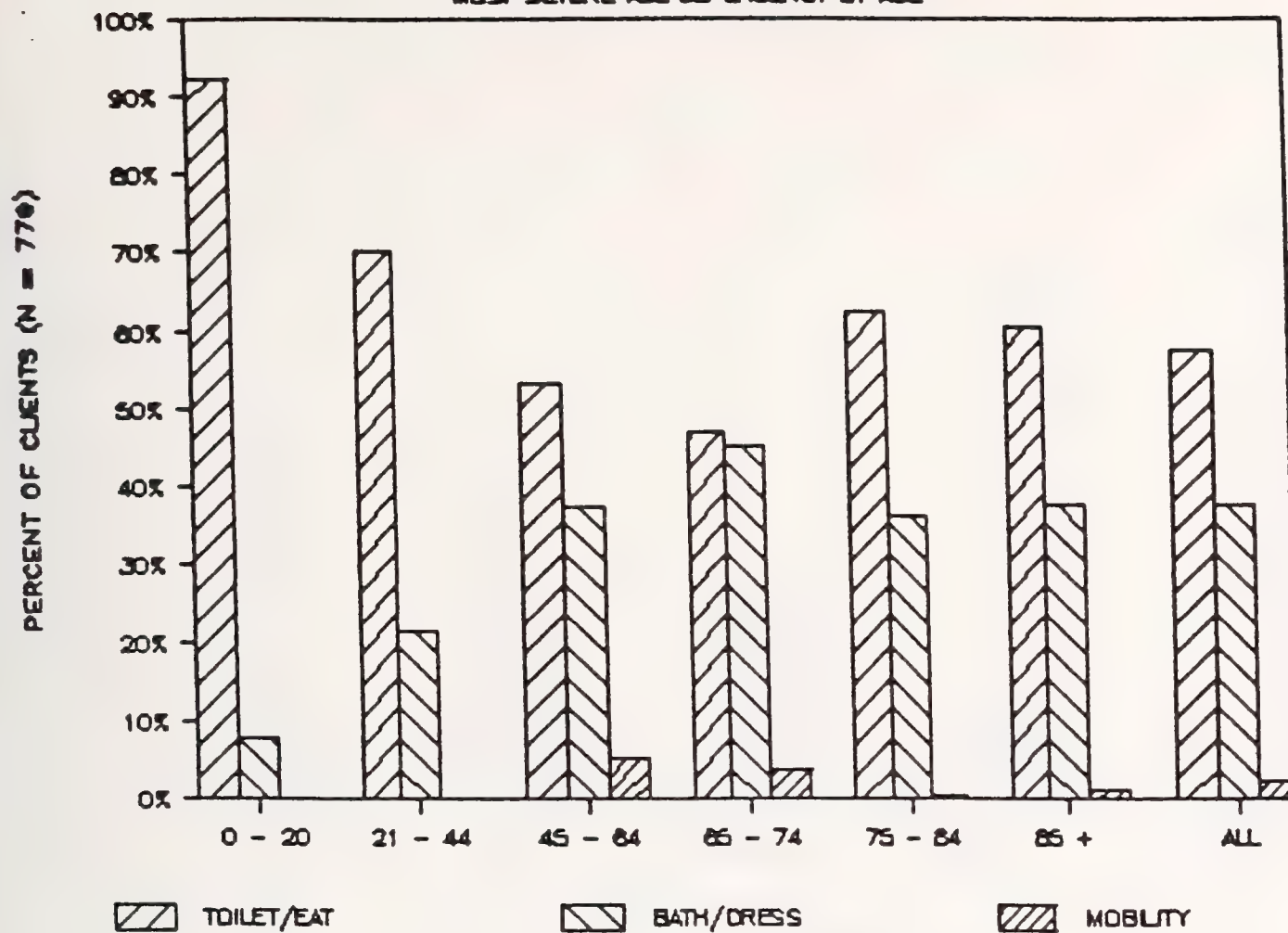
A large proportion of the enrollees have physical impairments, as shown in Exhibit 9-5. Almost all are limited in their degree of motion and 25% are severely limited. Fifteen percent are severely or moderately paralyzed. Incontinence is a significant problem for many. Sixteen percent suffer bowel incontinence regularly, while another 9% are occasionally incontinent (data not displayed). Bladder incontinence affects 31% and occasional bladder incontinence is a problem for another 13.6%.

The waiver population also is highly impaired in terms of mental and behavioral problems. Exhibit 9-6 shows the mental and behavioral problems most frequently reported on the DMA-6s. Forgetfulness is a problem for nearly 40% and confusion for almost one-quarter. Overall, 43.1% of the waiver enrollees has one or more mental or behavioral problems (of the 13 listed on the DMA-6 form).

Diagnostic information is also available from the DMA assessment form. Heart disease and hypertension are the most common diagnoses listed with frequencies of about 20%. These diagnoses are followed by diabetes and joint problems, listed for 12% and 14% of the enrollees respectively. Acute diagnoses are less common than

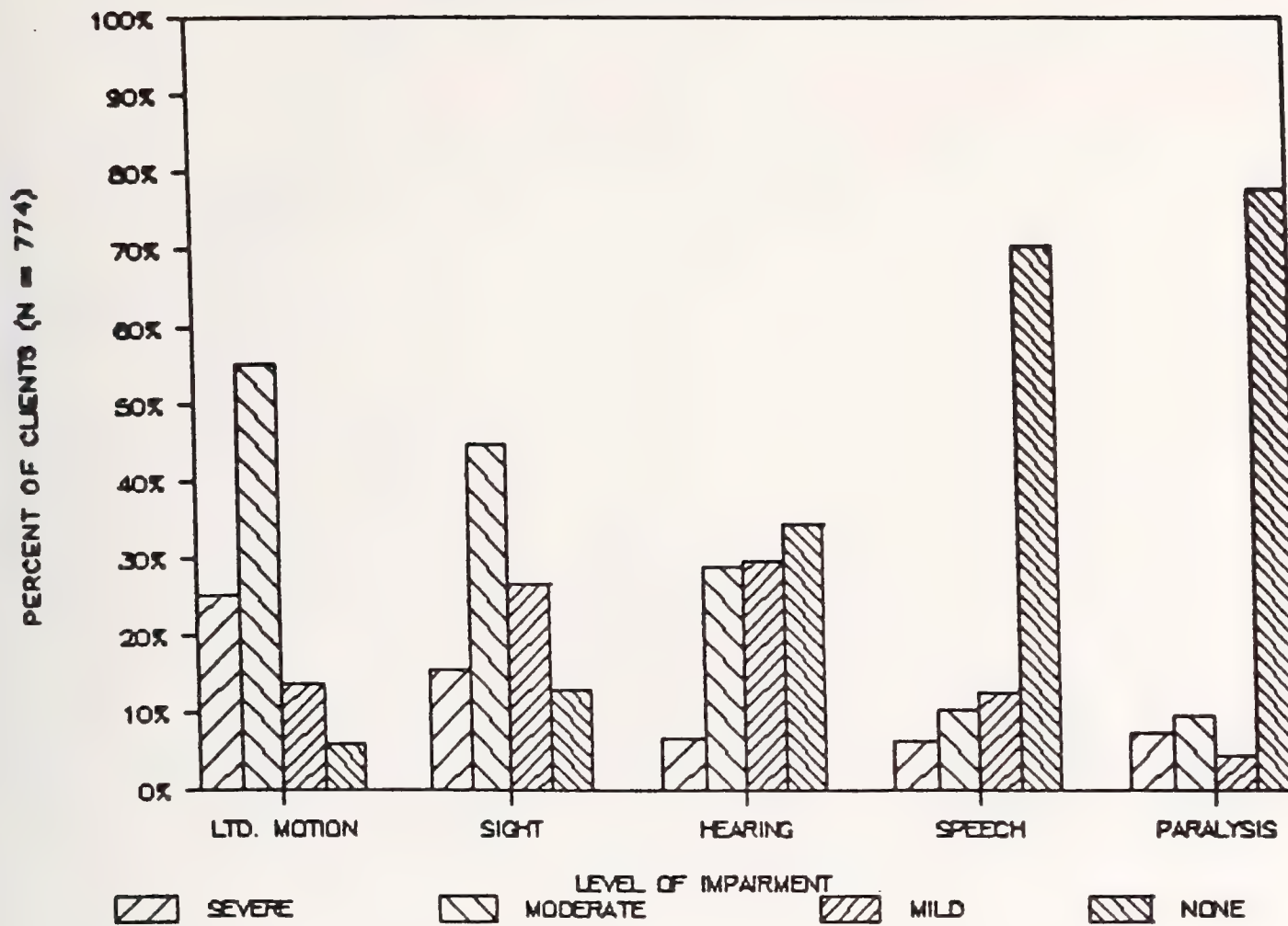
LEVEL OF FUNCTIONAL DEPENDENCY

MOST SEVERE ADL DEPENDENCY BY AGE



Source: GEORGIA WAIVER RESEARCH FILE (from AHS Enrollment Roster and Tape-to-Tape Georgia Medicaid Eligibility File), La Jolla Management Corporation, 1986.

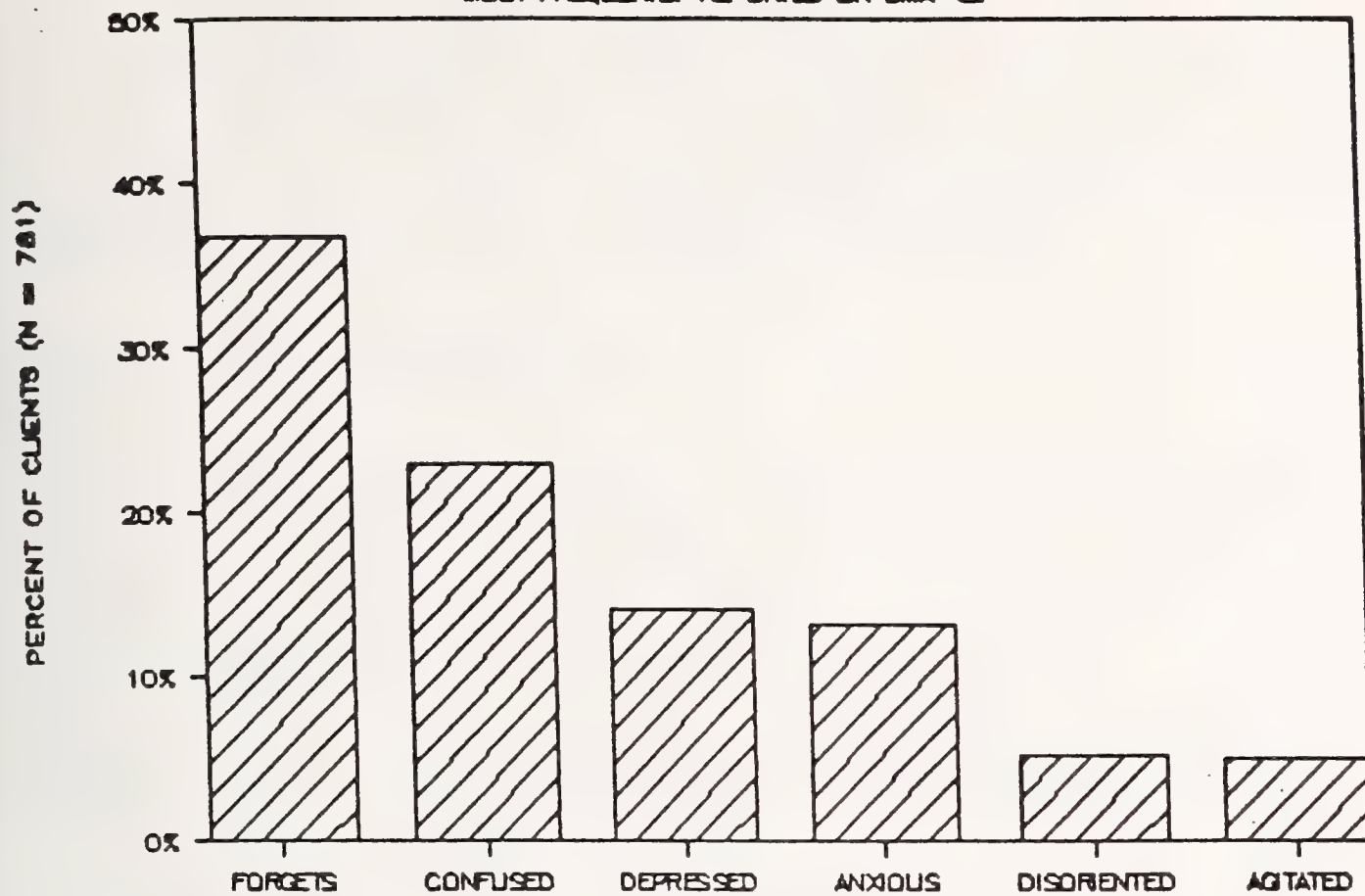
PHYSICAL IMPAIRMENTS



Source: GEORGIA WAIVER RESEARCH FILE (from AHS Enrollment Roster and Tape-to-Tape Georgia Medicaid Eligibility File), La Jolla Management Corporation, 1986.

MENTAL & BEHAVIORAL PROBLEMS

MOST FREQUENTLY REPORTED ON DMA-6



Source: GEORGIA WAIVER RESEARCH FILE (from AHS Enrollment Roster and Tape-to-Tape Georgia Medicaid Eligibility File), La Jolla Management Corporation, 1986.

these chronic diagnoses. For example, cancer is listed as a problem for 4% of enrollees. Psychiatric diagnoses (dementia and psychoses) are included in the medical problems section of the form for only seven percent of the enrollees, though these problems (at least to a degree sufficient to reduce the individual's ability to function in the community) are clearly more common in this population.

Service Utilization and Expenditures

Two different analyses of waiver utilization and cost are presented in this Chapter. One analysis uses the Georgia waiver research file of enrollment, cost and client characteristics for the 15 month period from October 1, 1981 (start of the waiver) through December 31, 1982. This file is person-based and this feature allows us to examine how costs vary with different client characteristics. The other analysis uses the HCFA-372 report from the first waiver year, which reports summary cost and recipient data. The analysis from the research data file is presented first.

Waiver service use and costs are presented below for the 1241 unduplicated waiver recipients on the research file (i.e., persons who had at least one waiver service claim in the period 9/81 - 12/82). Exhibit 9-7 shows the distribution of these waiver recipients and their length of participation and waiver costs by type of AHS service. The data clearly show that Home Delivered Services (HDS) is the dominant AHS service package in term of both people and total expenditures. Just over three-quarters (76.6%) of the waiver recipients received HDS and 60% of total waiver service spending was for HDS. About one-quarter (24.1%) of the AHS recipients were recipients of Adult Day Rehabilitation (ADR) care, while only 7.8% received Alternate Living Services (ALS). Some recipients received more than one type of service and thus the percentages total more than 100%.

Waiver expenditures for the 1241 recipients over the one and one-quarter year period totalled slightly over \$1.5 million. Sixty percent was spent on HDS, while almost thirty percent of total waiver expenditures were devoted to ADR, and just over ten percent were spent on ALS. Exhibit 9-8 shows the distribution of HDS costs by type of HDS service provided. Personal care accounts for about half of the total spending on HDS and nursing visits represent almost one-third.

WAIVER RECIPIENTS AND EXPENDITURES BY TYPE OF ALS SERVICE

	Type of ALS Service			
	ALS	ADR	HDS	ALL
Recipients (*)				
- Number	97	299	950	1241
- Percent	7.8%	24.1%	76.6%	100.0%
Quarters of Participation (**)				
- Number	229	719	2073	2877
- Percent	8.0%	25.0%	72.1%	100.0%
Waiver Service Expenditures				
- Dollars	\$164,121	\$457,953	\$933,235	\$1,555,308
- Percent	10.6%	29.4%	60.0%	100.0%
Average Cost of Waiver Services per User				
- Per Quarter	\$716.69	\$636.93	\$450.19	\$542.30
- Annualized	\$2867	\$2548	\$1800	\$2169

Notes: * The number of recipients of specific services adds to more than the total because some individuals received more than one service.

** A quarter of participation is a quarter in which an individual was a recipient of waiver services. Because some individuals received more than one type of service in a quarter the sum of specific services adds to more than the total.

Source: GEORGIA WAIVER RESEARCH FILE (from AHS Enrollment Roster, Tape-to-Tape Georgia Medicaid Eligibility & Claims File, and DMA-6 sample), La Jolla Management Corporation, 1986.

Exhibit 9-3

PERCENTAGE DISTRIBUTION OF HOME DELIVERED SERVICE EXPENDITURES
BY TYPE OF HDS SERVICE

<u>Type of Service</u>	<u>Percent of Total HDS Expenditures</u>
Personal Care	52.3%
Nursing Visits	31.0%
Home Health Aide	9.7%
Physical Therapy	4.1%
Medical Social Service	1.3%
Speech Therapy	0.3%
Other	<u>1.4%</u>
Total (*)	100.0%

Note: * Adds to more than 100% due to rounding.

Source: GEORGIA WAIVER RESEARCH FILE (from AHS Enrollment Roster and Tape-to-Tape Georgia Medicaid Eligibility & Claims File), La Jolla Management Corporation, 1986.

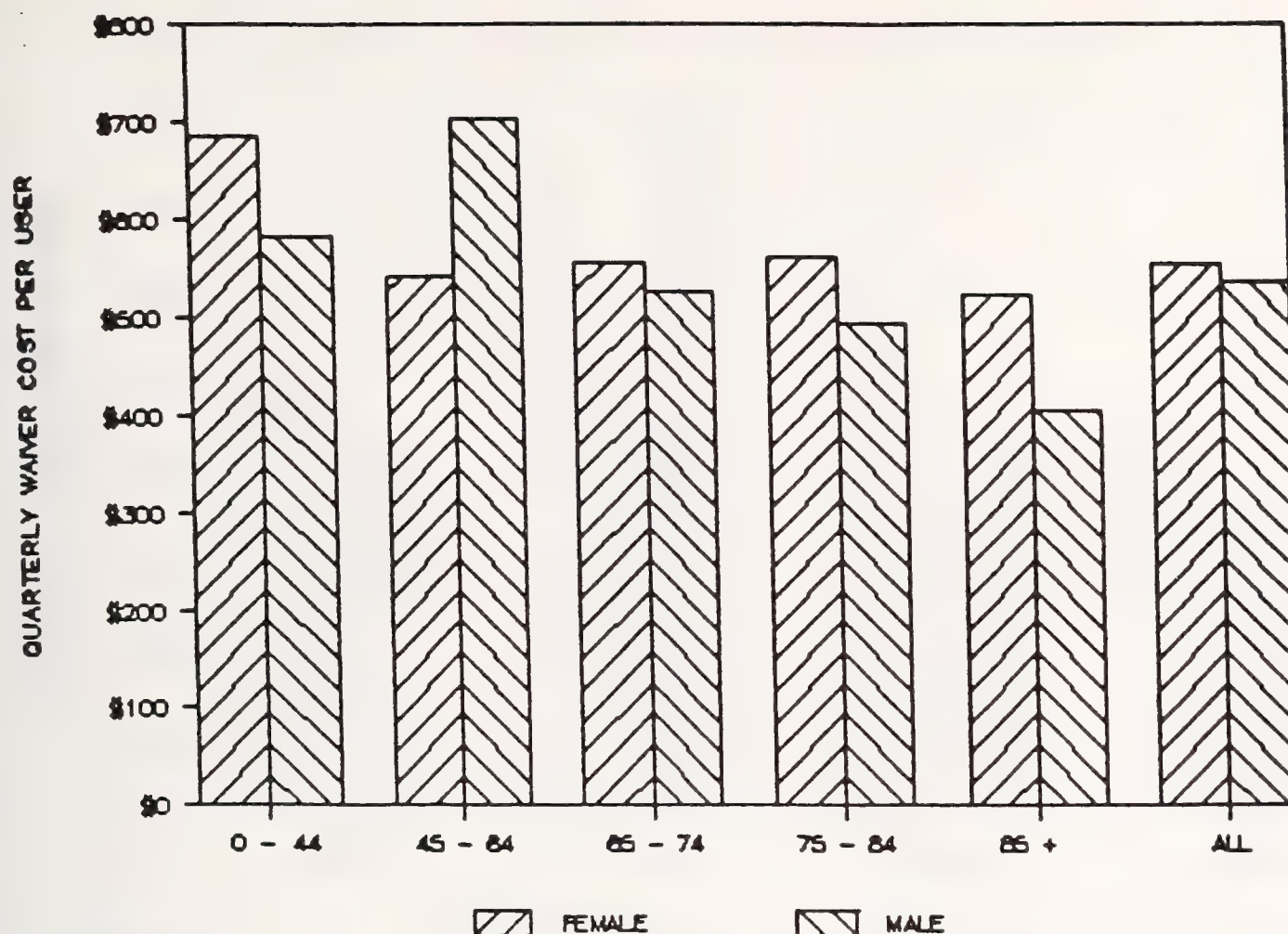
Although the study period is 15 months, very few of the clients participated for the full period. Total quarters of participation for the 1241 recipients was 2877, which is equivalent to 211 days per recipient on average. About 45% of the recipients were admitted in the last two quarters of the period and have shorter than average stays. Assuming they stayed the maximum possible (1 or 2 quarters), the rest of the recipients would average somewhat less than three-quarters of a year of participation per person. Since few persons were active in the program for the full time period, the average cost per quarter of participation gives a more accurate representation of waiver services costs than does cost per recipient.

The average cost of waiver care per quarter of participation was \$542.30, as shown in Exhibit 9-7. Note that this cost reflects only the purchased services and does not include the costs of assessments or administration. Based on this figure, a full year of waiver care costs \$2169 on average. It costs somewhat less to provide HDS than the other less frequently used services. The average HDS recipient used \$1800 per full year in HDS services, compared to \$2548 for ADR users and \$2867 for ALS users. Total Medicaid expenditures per quarter of waiver participation averaged \$1154.71 or \$4619 per full year (data not displayed). Thus, waiver care represents just under 47% of the total Medicaid expenditures for the clients during the time they were being served.

Waiver service cost tend to vary with the characteristics of the clients. Exhibit 9-9 displays waiver services costs per quarter by age and sex. In general, the female clients tended to cost more than male clients. The average female cost \$555 per quarter of participation versus \$537 for the average male. It also appears that the groups under age 65 are more expensive to serve. Since the younger clients were also more impaired in terms of Activities of Daily living, they may require more waiver care.

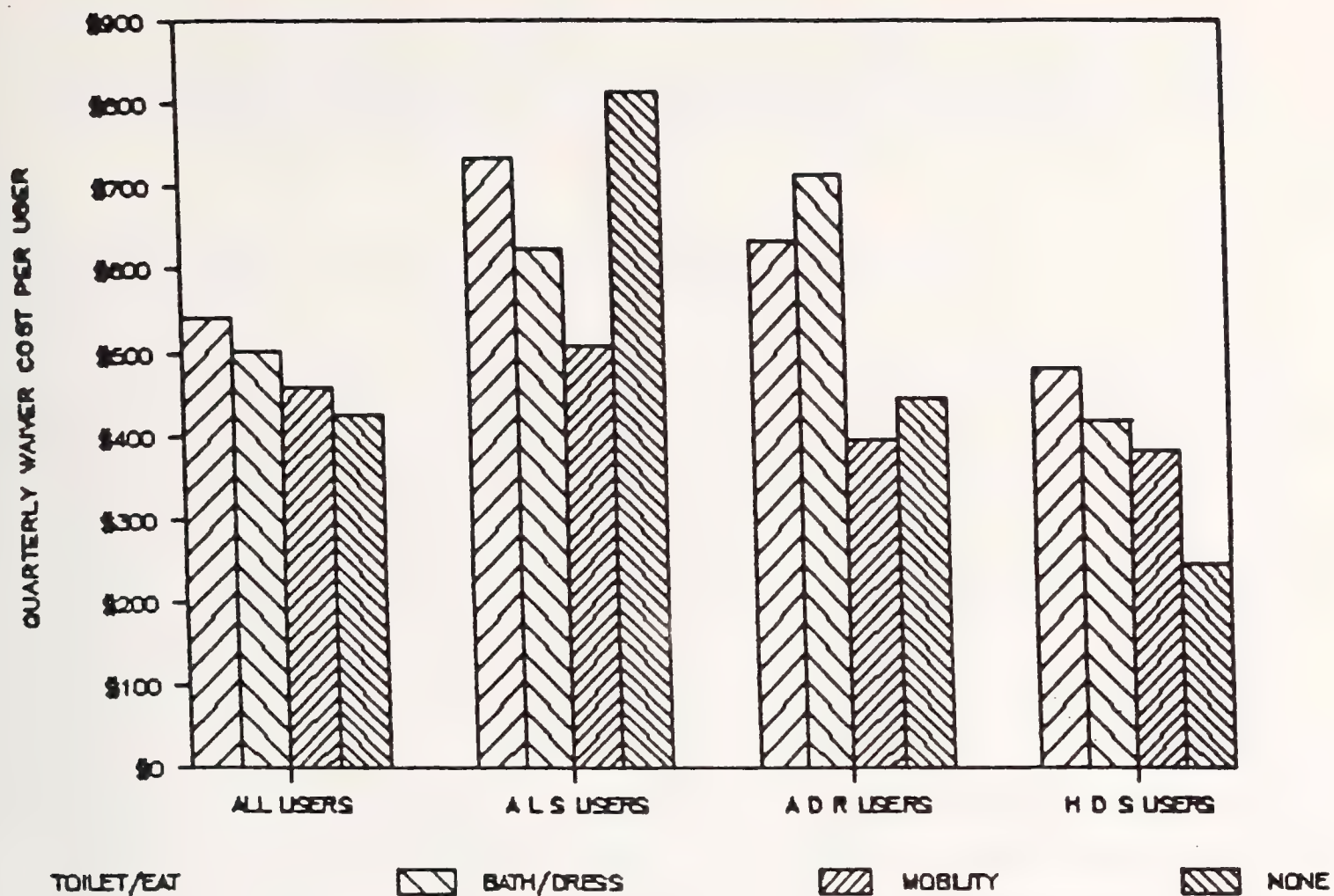
As shown in Exhibit 9-10, quarterly waiver service costs are generally greater for those with more severe ADL levels. Across all users, there is a clear relationship between ADL dependency and waiver costs per quarter. Those who are toileting and/or eating dependent (the most severely dependent) cost \$541 per quarter compared to those with no ADL impairments who cost \$425 per quarter. Even after controlling for type of service, the pattern persists. (Due to small numbers of observations, the

QUARTERLY WAIVER COST BY AGE AND SEX



Source: GEORGIA WAIVER RESEARCH FILE (from AHS Enrollment Roster and Tape-to-Tape Georgia Medicaid Eligibility File), La Jolla Management Corporation, 1986.

WAIVER COST BY ADL DEPENDENCY



Source: GEORGIA WAIVER RESEARCH FILE (from AHS Enrollment Roster and Tape-to-Tape Georgia Medicaid Eligibility File), La Jolla Management Corporation, 1986.

averages may be unreliable for the ALS and ADR users with only mobility of no ADL impairment.) Those clients who had a mental and behavioral problem had quarterly waiver costs only slightly higher than those without a problem - \$525 vs. \$518.

Waiver Expenditures and Use - Analysis of the HCFA-372 Report

The State's official statistical report to HCFA (HCFA-372) provides aggregate data for the program. It differs from the data reported above in that a person who was enrolled in the waiver for one month is included as a waiver recipient for the entire year for reporting purposes. For the first year (i.e., the 12-month period ending September 30, 1982) of the AHS waiver program this report indicates that total spending on waiver services was \$1,651,384, as shown in Exhibit 9-11. The table also displays total annual Medicaid expenditures for all the clients served by the waiver program. As can be seen, the waiver expenditures constitute 32.2% of the total Medicaid costs to serve the 1272 waiver recipients in this period. Medicaid expenditures per recipient totaled just over \$4,000, with about \$1,300 accounted for by waiver services and an almost equal amount (\$1,247) due to inpatient hospitalization. (This is lower than the \$4,619 reported from the quarterly research data because persons enrolled for any time are counted as recipients for the year for purposes of the report to HCFA. Other service use figures per person are similarly understated by this report, but the relationship between the figures should be accurate.) Use of hospital care by this population is remarkably high; over half of all waiver recipients (50.2%) used inpatient hospital care during the year. In addition, almost all of the waiver clients had expenditures for prescription drugs (96.1%) and the majority used either physician and/or outpatient services (89.7% and 60.7%, respectively). More than one in five (21.8%) used regular Medicaid home health care services. One of every eight waiver clients used some nursing home care during the year (5.3% used ICF and 7.2% used SNF). Since only seven of the 159 nursing home users were admitted to the waiver program directly from the nursing home, this implies that waiver clients used nursing homes in addition to the waived services.

The data reported show that the average client spent 231 days in the program during the year (i.e., some entered the program in the middle or end of the year and others were discharged before the year end). Since not all of the clients were

Exhibit 9-11

**COST AND UTILIZATION OF MEDICAID AND WAIVER SERVICES
BY WAIVER RECIPIENTS DURING THE FIRST WAIVER YEAR ***

Service	Expenditures		Users		Cost per Waiver
	\$	%	#	%	Recipient
<u>Regular Medicaid Services:</u>					
Hospital Inpatient	1,586,295	30.9	638	50.2	\$1,247
Nursing Home - ICF	168,475	3.3	67	5.3	132
Nursing Home - SNF	222,922	4.3	92	7.2	175
Physicians Services	371,343	7.2	1141	89.7	292
Hosp. Outpatient	157,727	3.1	772	60.7	124
Clinic Services	91,567	1.8	110	8.6	72
Lab & X-ray	2,908	0.1	135	10.6	2
Prescription Drugs	349,976	6.8	1222	96.1	275
Home Health Services	385,359	7.5	277	21.8	303
<u>Waiver Services:</u>					
Home Health Aide	98,506	1.9	130	10.2	77
Personal Care	455,592	8.9	577	45.4	358
Adult Day Health	493,715	9.6	403	31.7	388
Other Approved Servs.	603,571	11.8	1077	84.7	475
Total Waiver Services	1,651,384	32.2	1272	100.0	1,298
Total - All Services	5,129,101	100.0	1272	100.0	4,033

* Source: HCFA-372 for the first waiver year (10/81-9/82).

enrolled in the waiver program for the entire year, the costs on a per user or per waiver recipient basis tend to understate the cost of a full year of waiver care. Based on the average number of days of waiver participation, waiver care costs were \$170.79 per person month of participation. Annualized, a full year of waiver care cost \$2049, based on this per day technique. This is remarkably close to the \$2169 obtained from the research files and reported above. By way of contrast, the HCFA-372 data (on persons using only nursing home care) show a full year of nursing home care costs \$8728. Thus, the waiver care can reduce Medicaid costs for long-term care services if it can effectively substitute for nursing home care. The extent to which waiver care does substitute for institutional care is the subject of the next section.

RESEARCH METHODS AND DATA FOR THE WAIVER EVALUATION

This section describes the data and methods used for the evaluation of the ability of the Georgia program to achieve budget neutrality. This central evaluation question can usefully be separated into three related questions:

1. What is the probability that someone enrolled in the program would have entered a nursing home in the absence of the waiver services? That is, what percent of a control population like that enrolled in AHS in terms of the factors that influence nursing home use will enter a nursing home in one year? This concept will be called targeting effectiveness. This measures the ability of the program to enroll persons who are at risk for going to nursing homes.
2. How much did the waiver services change the probability of nursing home use for those of its enrollees who were going to nursing homes? That is, by how much is the probability of nursing home use for AHS clients different than the probability of nursing home use for the control population? This concept will be called service efficacy.
3. What are the best kinds of people to enroll in the program? That is, could the program's ability to meet the goal of budget neutrality be improved by targeting program services toward specific kinds of people?

The techniques used for this analysis, and the logic of the research design are similar to those for the California MSSP analysis described in Chapter Six. Specifically, the goal is to compare the use of nursing home services between the client and control groups. This goal is operationalized in two parts. First, AHS targeting is measured by the probability that control group members of specific types enter nursing homes during the one and one half years covered by this study. Second, if AHS services are successful in changing this probability, then its clients will not enter nursing homes as often as members of the control group. This is the efficacy of the AHS services. These two pieces of information, combined with the service cost data presented above are enough to determine whether or not the AHS program is budget neutral.

Data Sources

Three data sources were used for the AHS evaluation. First, it was necessary to obtain measures of health, functional status, and living arrangements for both the program's clients and for a comparison group. This information is needed to measure the probability that someone will need to enter a nursing home and to support the statistical control which ensures that outcomes for similar people in the program and comparison groups are compared. For clients, this information was obtained from the State's nursing home admission form - the DMA-6. Since clients must be certified for nursing home entry as a part of the program's screening efforts, this form was filled out for each client by a nurse or social worker and signed by a physician. Hard copies of this form were obtained from program offices throughout the State, keypunched and verified for 990 of the 1770 enrollees during the first one and one quarter years of the waiver. Forms for the remaining enrollees were lost, misfiled, or otherwise unavailable for this research.

It was also necessary to find a group of impaired people in Georgia who did not enroll in the waiver but where the same DMA-6 information was available. Nursing home residents were considered as a potential comparison group, but, since their probability of nursing home entry is one by definition, an impaired group located in the community seemed preferable. Before the AHS program received its waiver, it was a demonstration project. One of the assessment forms used by the demonstration was the DMA-6. This form was used (among other things) to re-assess members of the

control group for the demonstration. Therefore, the most recent DMA-6 for the original demonstration control group members was obtained and linked to subsequent service use for those control group members who did not enroll in the program after it became a waived program during the research period -- September, 1981 to December, 1982. In addition, not all of the demonstration's clients were transferred to the waiver. DMA-6 information was available for 296 of these individuals as well as for the demonstration control group members. These groups combined provide a "control group" with 479 members.

This means that the assessment data (health and functional status and living arrangements) for the comparison group are about six months older than the same information for the enrollees. The waiver program does not re-assess its enrollees unless they entered a nursing home or maintain contact with the old demonstration control group. Thus, for both treatment and control groups the assessment and service use data become less relevant to each other as time passes and this problem is worse for comparison group members. This introduces a possible bias in favor of the program into the analysis because the relationship between level of frailty and service use for the comparison group is potentially biased upward more than for the treatment group. In other words, the comparison group may actually be frailer than their old DMA-6 forms would indicate and as a result of this higher frailty, they may use nursing homes more often than apparently similar clients (whose frailty is less understated). Thus, this potential source of bias could indicate that program enrollees were more likely to enter a nursing home than was actually the case and that the program services were more effective in changing this than was actually the case. A potential source of bias in the opposite direction also exists. This is due to the fact that clients do not necessarily use services for all months in a quarter. A client using services in month one will be included in the analysis as a client for the entire quarter, even if no additional services were provided after this time.

The second data source was the Medicaid claims tapes from Georgia. These data were obtained through the Tape-to Tape system, a person-based research file based on the State's MMIS data. The final data source was the Medicare claims file. These files were matched to the Tape-to-Tape files to create a fairly complete picture of service use for most of the program's enrollees. This combined service use file was then linked to the DMA-6 files to create a person based time oriented data set.

For purposes of analysis, these data were converted from person based records to records based on an episode of care. An observation is any time between an the DMA-6 date or exit from a nursing home and either entry to a nursing home, death, loss to followup or the end of the study. This avoids certain problems in coding the data for analysis by limiting the number of potential paths to nursing home entry or to an absorbing state (death, lost, end of study), and it means that some people (those who enter and leave nursing homes) will contribute more than one observation to the analysis. For this reason, this analysis is based on 1743 observations derived from data on 792 clients and 479 controls.

Methods

To review the research design briefly, one approach to comparing service use between clients and the comparison group would be to simply compare average service use between the clients and controls. This assumes that the two groups are equivalent except that one received waiver services and the other did not. However, health and functional status change with age, subtle biases may have crept into the original randomization process, and program enrollees are probably systematically different than demonstration clients. Therefore, as with MSSP, the Grade of Membership model will be used to statistically control for differences between clients and controls in the factors that influence nursing home use. Comparisons will be done only within groups that are similar with respect to the multiple factors that influence nursing home use.

The second problem of a simple comparison involves time, e.g. people enter nursing homes at different times; some people will die or be lost to the study before they could have entered a nursing home. That is, exposure times to the experiment will be different between clients and comparisons. In addition, differences in entry times must be counted since one possible effect of the AHS services will be to delay nursing home entry -- a positive outcome that should be captured in order to provide a fair evaluation. Controlling for these kinds of potential bias is the role of the life table model.

Grade of Membership: A Non-technical Description. The GOM model is a way of describing the characteristics of groups of observations, e.g., different types of elderly

people. In order to understand GOM, it is first necessary to gain an intuitive grasp of its logical structure -- the kind of groups it creates and the way that people are assigned to each group. The GOM model was specifically developed for multivariate analyses of medical diagnosis and symptom patterns. In particular, it was designed to cope with the fact that any naturally occurring population will exhibit considerable variation within general disease categories such as lung cancer. This heterogeneity is due to differences in such factors as disease progression or severity and the interaction of a person's characteristics with the disease mechanism. Such problems clearly emerge for chronic physiological disease processes and in elderly patient populations. The GOM model has proved successful in describing the more complex clinical characteristics of both acute and long-term care clinical populations.

The logical structure of GOM is a type of classification method producing "fuzzy groups". This is different from the kind of groups normally used which are called "fixed boundary" groups. For example, someone either has blue or brown eyes, straight or curly hair, etc. GOM groups per se are more like archetypes or extreme values; and, instead of being in one group and not another, an individual is characterized as more like one extreme and less like another. In other words, people are described by the sum of their partial membership in several groups. If two fixed boundary groups are used to describe the distribution of income, someone would be either rich or poor. However, if the same person was described using fuzzy boundary groups, it might be said that the extremes are rich like Rockefeller and poor like an Appalachian farmer. Then to describe a particular individual, it could be said that he was five percent like Rockefeller and ninety five percent like the farmer. These percents always total 100 and constitute the grades of membership.

The above example can be improved by recognizing that there might be several dimensions to the phenomena that one might wish to consider. If the concern was a broader concept like social status, then dimensions in addition to income would need to be considered. In this event the extremes, called "pure types", would become more complex as they reflected more dimensions. For example, old rich, new rich, poor farmer, and poor urban ghetto might be found among the multi-dimensional pure types. But again, any particular individual can still be described in terms of a "Grade of Membership" in each of these more complex types; e.g. 5%, 20%, 25%, 50%. (The membership scores must always sum to 100 percent.)

The first problem to be faced in this analysis, then, is that the comparison group, the demonstration group and the waiver group are all different along the multiple dimensions of health status, functional ability, demographics, and living arrangements. In addition, each of these dimensions may be measured by several variables. GOM will be used to create "pure type" groups from data reflecting each of these dimensions and simultaneously to assign Grade of Membership scores to each person for each of the resultant pure types. GOM is a pattern recognition technology related to factor and cluster analyses. It differs from these tools in that the optimal number of types may be empirically determined and in that the GOM scores always sum to 100%. More important, GOM is based on maximum likelihood techniques and, therefore, it has a firm statistical foundation. This is not true for these other techniques.

The GOM model is sufficient to control for differences between each of the population groups along all of these dimensions. Specifically, assume that one pure type is very impaired and fairly likely to require nursing home services. Some persons in each of the population groups will be heavily represented in this category, although fewer of the control group will have high membership scores for this type because the control group is healthier as a group than the intervention group. Nonetheless, if persons in both the intervention and control groups belong to this particular type, at least in part, then the probability and the time path to nursing home can be known for both interventions and controls.

If this can be accomplished for each pure type, then, since any individual is simply defined as a blend of the pure types, the likely effect of the waived services on any individual with any combination of health or functional status problems will be known. In a similar vein, if an individual has particular characteristics at one point in time, such as at an assessment, then these characteristics will result in a pattern of grade of membership scores for that individual at that time. At each new assessment the individual is likely to be different, if only because he is older. These differences will result in a new set of grade of membership scores at each point in time, e.g., at each new assessment.

Each pure type will have its own probability of nursing home use. In order to achieve the maximum potential savings, one should target toward the pure type blend

with the highest probability of nursing home use. The targeting effectiveness of AHS is obtained from the blend of its clients among the pure types. Differences between AHS clients and controls will be reflected in differences in proportions in each of the pure types.

To summarize briefly, GOM analysis has several properties that are particularly important in controlling for differences between individuals in the client and control groups. This is because, simultaneous with the determination of the profile of characteristics that describes a pure type in a classification system, the GOM model determines the degree to which each individual is described by that profile. Each client may belong, in part, to several groups. A case may be ninety percent like group one and ten percent like group three. These percents are the grades of membership of that individual in the pure type groups. This means that the model can explicitly represent the heterogeneity of individuals within a discrete classification scheme (the pure types).⁶

A Non-technical Description of the Life Table Technique. Among the outputs of the GOM model are estimates of the probability of a particular transition for the entire population, and for clients and controls, estimated separately. These probabilities were estimated for three states that end an observation: nursing home, death, or new assessment/end of study/lost to follow up. These are raw estimates. A raw estimate of the probability of, for example, permanent nursing home is confounded by the fact that, for some observations, death (or another of the absorbing states) intervened before this transition would otherwise have occurred. Since this confounding may be different for clients and controls, it is a source of bias in the raw estimates. This phenomena is called censoring.

The Purpose of a Cause Elimination Life Table. The purpose of a cause elimination life table is to statistically eliminate the effect of censoring from estimates of transition times and rates for states of particular interest--in this case, nursing home entry and death. In other words, the cause elimination life table adjusts estimates of (1) the probability that someone of, for example, pure type one will enter a nursing home and (2) the time from assessment to entry, for the confounding effects of the fact that an observation may end in an assessment, the study may end or the person may be lost to follow up. The removal of these effects

is referred to as "cause elimination". In essence the process works by re-introducing a person who e.g. died to the lifetable and, thereby exposing this person to the statistical risks that he would have faced had he survived. This "removes" death as a cause of decrement, and allows comparisons to be made between two populations with different death rates.⁷

FINDINGS

The Georgia Grade of Membership analysis results indicate that the program enrolls a much sicker and frailer population than MSSP. Three of the pure types look like probable nursing home candidates. On Exhibit 9-12 on the following page, the first column lists various conditions, diagnoses and services. The second through sixth columns relate the pure types to the variables in the first column. Yes indicates that the condition is characteristic of this type and no indicates that it is not. Occasionally characteristics are described as severe or moderate, and variables like age are used to define types as "very old" or "young". Note that the fact that both populations are characterized by five pure types is coincidental. Also, the numbering of the pure types is arbitrary. There is no necessary connection between type one in MSSP and type one here.

The first pure type is not characterized by ADL limitations or by particular diagnoses. Instead, this type has a physician defined need for various therapies, implying that these people have potential for rehabilitation. This type has some ADL limitations but tends to be both independent and alert. Perhaps persons of this type are most able to benefit from services like occupational therapy. These individuals also tend to be black and female.

The second pure type are younger white males. They have a few medical conditions, and are characterized by the absence of ADL problems. Remembering that GOM pure types represent the extremes in the population and that individuals are healthy individuals. Therefore, this type will be referred to as the healthy type. Control group members are characterized by aspects of this pure type proportionately more often than would be expected from chance alone. This implies that, since

Exhibit 9-12 .
RESULTS OF THE GOM ANALYSIS: GEORGIA
 1,743 Observations, 68 Internal Variables

Diagnoses	Type 1	Type 2	Type 3	Type 4	Type 5
<u>Physical</u>					
Cancer				Yes	
Diabetes	Yes		Yes		
Anemia				Yes	
Dementia					
	Yes				
Psychological					
	Yes				
Neurological				Yes	
Eye Problem				No	
Hypertension	Yes		Yes		
Heart			Yes		
	Yes				
Stroke				Yes	
Arteriosclerosis		Yes			
Lung		Yes			
Ulcer				Yes	
	Yes				
Digestive		Yes			
Nephritis				Yes	
Urinary					
	Yes				
Joints			Yes		
Fracture				Yes	
Decubiti				Yes	
Other DX				Yes	
<u>Limitations and Behavior</u>					
Bowel				Yes	Yes
Bladder				Yes	Yes
Agitated					Yes
Confused					Yes
Cooperative					No
Depressed				Yes	Yes
Forgetful					Yes
Alert	Yes			No	No
Noisy					Yes
Non-Responsive					Yes

(Continued next page)

Diagnoses	Type 1	Type 2	Type 3	Type 4	Type 5
Limitations and Behavior (continued)					
Vacillates	Yes				
Violent					Yes
Wanders					Yes
Withdrawn					Yes
Dependent				Yes	Yes
Independent	Yes	Yes			
Anxious		Yes			Yes
Disoriented					Yes
Inappropriate Behavior					Yes
Sight			Poor		Poor
Speech				Problem	
Hearing			Poor		Poor
Limited Motion	Moderate	None	Moderate	Severe	
Paralysis				Severe	
Eating				Yes	Yes
Wheel Chair	Yes			Yes	
Transfer	Yes	No	Yes	Yes	Yes
Bathe	Yes	No	Yes	Yes	Yes
Ambulate	Yes	No	Yes	Yes	Yes
Dress	Yes	No	Yes	Yes	Yes
Services					
Fluids In	Yes				
Fluids Out	Yes				
IV				Yes	
Suction				Yes	
Catheter				Yes	
Sterile Dressing				Yes	
Colostomy				Yes	
Bed Fast				Yes	
Physical Therapy	Yes				
Occupational Therapy	Yes				
Remotive Therapy	Yes				
Reality Orientation	Yes				
Speech Therapy	Yes				
Bowel/Bladder Training	Yes				
Activity Program	Yes				
Demographics					
Age		Young	Very Old		Very Old
Sex	Female	Male	Female	Male	Female
Race	Black	White	Black	White	

control group was a random selection from the demonstration, the AHS waiver program is targeting toward a frailer population than it did as a demonstration. defined as blends of the pure types, it is logical that one type represents relatively

The third type are very old black females. They have hypertension and heart problems, poor vision and hearing and are somewhat limited in moving, transferring and bathing. Relatively few of the control group (the group carried forward from the demonstration period) were like this pure type. This type is old, not married and alone, and it could be called the old/alone type.

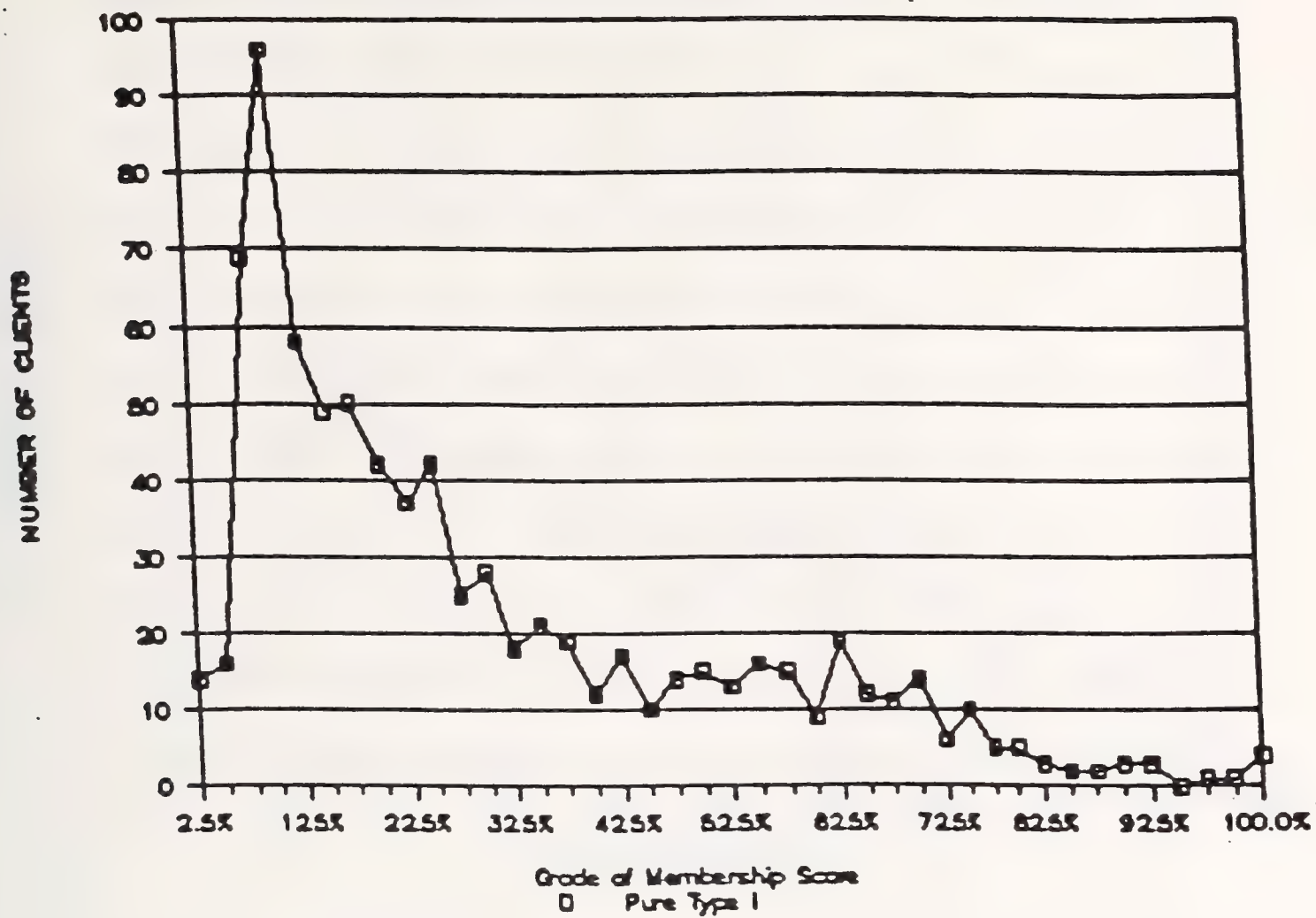
The fourth type have more medical problems including cancer, stroke, and urinary conditions. They require medical services including fluids, suction and catheters, which imply serious clinical problems. These people also have ADL problems including eating, transfer and bathing. Persons of this type are typical for this population in terms of age, are more often male and white. Very few of the comparison group were of this type. This is the acutely ill type.

The fifth type suffers from a range of behavioral problems, consistent with the dementia and psychological problem diagnoses. They have poor sight and hearing problems. These are very old females. However, the distinguishing feature of this type is the range of diagnoses and problems that revolve around psychological and behavioral problems. Therefore, this type will be referred to as the senile type.

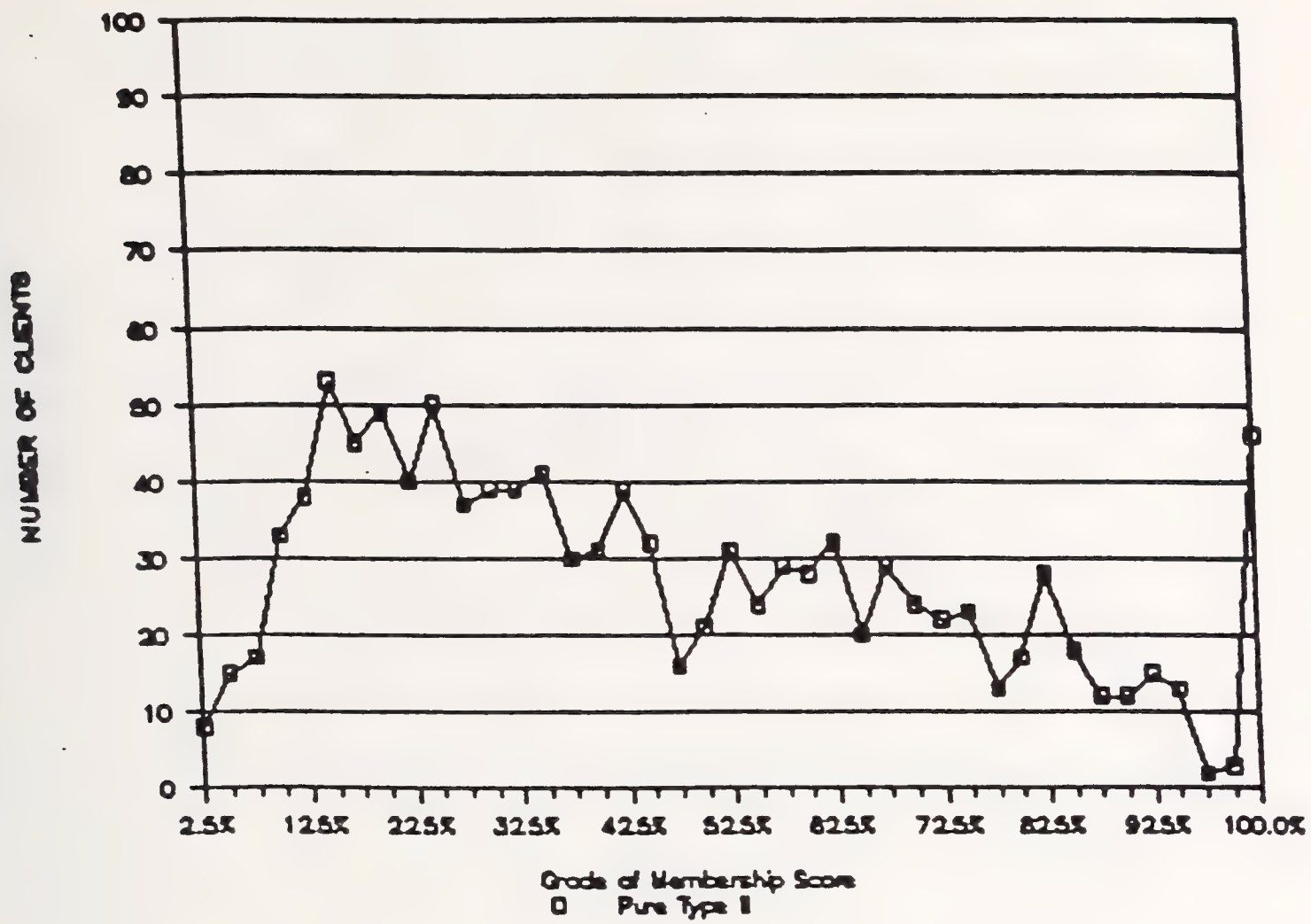
Grades of Membership

The grades of membership of AHS clients in the five pure types are shown in Exhibits 9-13, A through E. The number of clients on the Y axis is graphed against the grade of membership score for each type in 2.5% increments on the X axis. Thus, in 7A, the graph for type one, about 95 people in the waiver program had grade of membership scores in the range 10% to 12.5% for type one. These figures provide a sense of the way that clients load into each pure type. Two patterns are apparent. The first pattern, shown by types one, four and five, indicates that many people

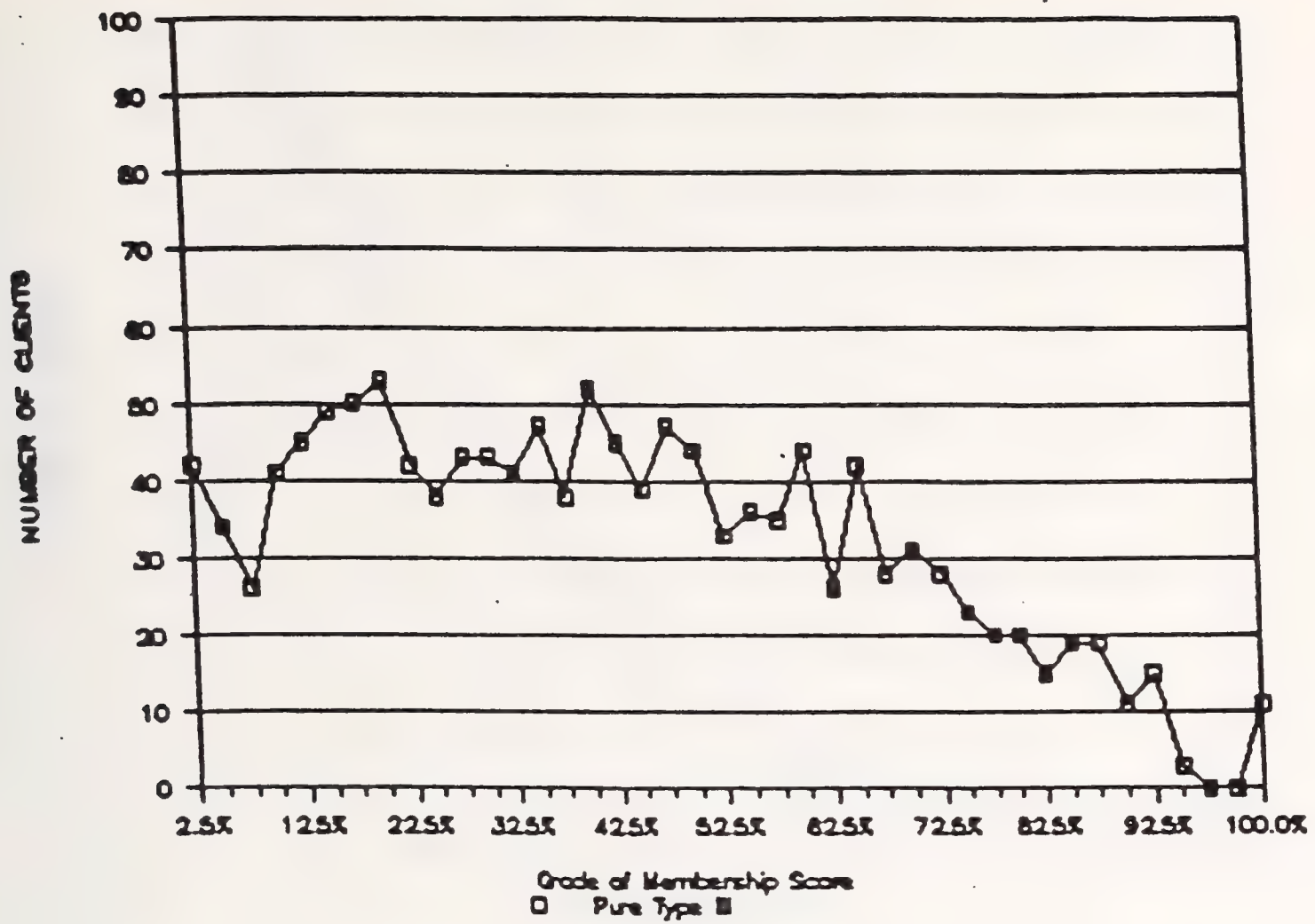
Grade of Membership Distribution



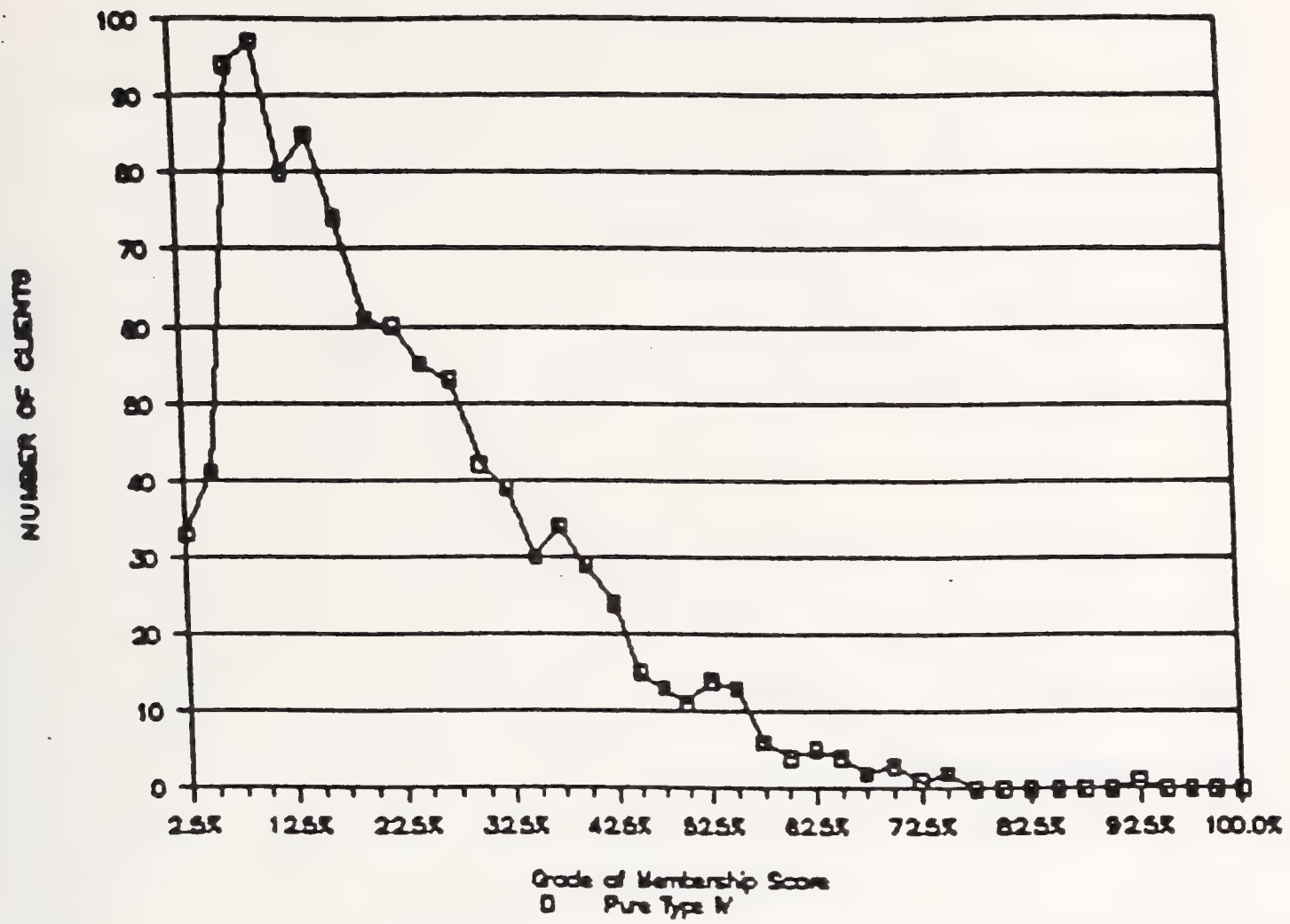
Grade of Membership Distribution



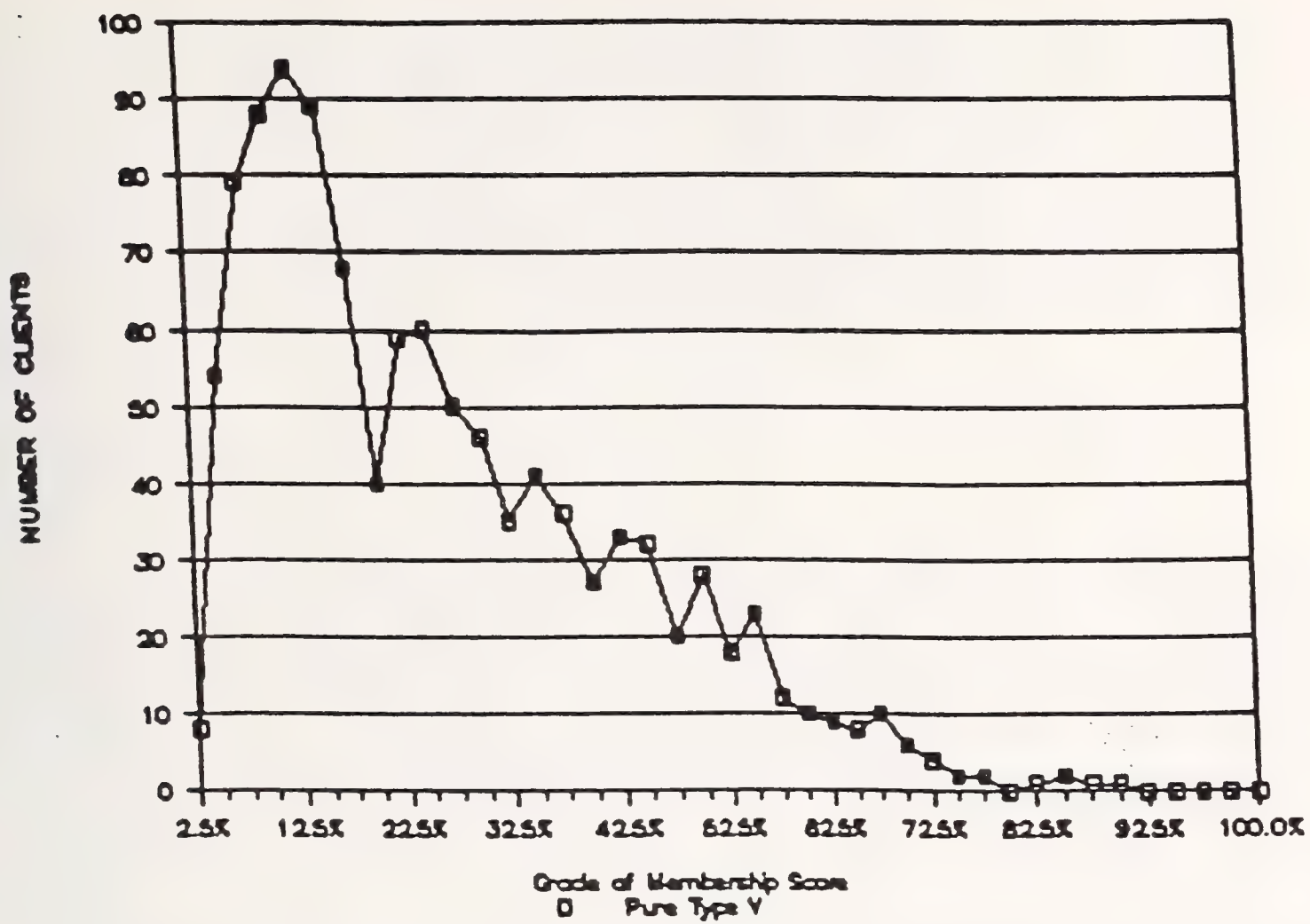
Grade of Membership Distribution



Grade of Membership Distribution



Grade of Membership Distribution



belong in small part to these types. The second pattern, shown by types two and three, is flatter, indicating a more even distribution of scores for these types in the enrolled population. This implies that it is more common for people to be highly characterized as either healthy or old and alone. The other three types have relatively more characteristics that would describe someone that is 100% of the type. Thus, someone with just a few of these characteristics will have some membership in one of these types, but the membership score will be low.

The Lifetable Results and Budget Neutrality

The results of the lifetable analysis are presented in Exhibit 9-14. Unfortunately, the fact that few of the comparison group fell into types three (the old/alone) and four (the acutely ill) means that lifetable results i.e. an estimate of the probability that a control of this type would enter a nursing home within one year, are not available for comparisons for these types. Thus, the reader should focus on the results for the entire population blended to match that enrolled in the AHS program.

The lifetable results establish whether or not the AHS program is budget neutral. To be budget neutral the program must save enough on those people that would have entered a nursing home absent the program's services to pay for the services delivered to people who would not have entered a nursing home in any event (bad targeting) and to pay for services delivered to those who entered a nursing home despite the provision of these services (no service efficacy). During one quarter, Georgia saves the difference between the average cost of keeping a client in a nursing home (\$8728) at the cost of keeping that person in the community (\$2169) or \$6559 for every person correctly enrolled. Since keeping someone in the community costs \$2169 per quarter on average, each person correctly enrolled saves enough to pay for three people wrongly enrolled. This means that the program must combine targeting and service efficacy such that it changes the nursing home outcome for one out of four of its enrollees.

LIFETABLE RESULTS FOR GEORGIA

**The Probability of Entering a Nursing Home
in Eighteen Months for Clients and Comparisons**

	<u>Pure Types</u>					<u>Blended to Match Program</u>
	1	2	3	4	5	
CONTROL	25.9	11.1	*	*	57.1	28.9
CLIENT	20.9	13.5	45.1	29.4	58.2	30.0

* INSUFFICIENT DATA FOR COMPARISMS

The lifetable results measure budget neutrality in this sense and answer the three questions listed at the beginning of this section:

1. What is the probability that someone enrolled in the program would have entered a nursing home absent the waiver services? This concept will be called targeting effectiveness.
2. How much did the waiver services change this probability? This concept will be called service efficacy.
3. What are the best kinds of people to enroll in the program? That is, could the program's ability to meet the goal of budget neutrality be improved by targeting program services toward specific kinds of people?

The first question is targeting effectiveness. Targeting is measured by the probability that a control group member will enter a nursing home. The lifetable results for targeting are consistent with the images presented by the characterizations of the pure types. Most striking is the excellent targeting in the Georgia program-- at least as compared to the California program. For the AHS program, this probability is almost thirty percent (Table 9-7, the column labeled "mixed, the row labeled "control"). It should be noted that this level of targeting accuracy is high enough to achieve budget neutrality, but only if the services actually keep enrollees from entering nursing homes.

This leads to the second question, service efficacy. Service efficacy is the difference in the probability of nursing home use between those who received the AHS services (the clients) and those who did not (the controls). For both clients and controls the probability of nursing home entry is about thirty percent. This means that, while Georgia was able to enroll people who were fairly likely to require nursing home placement, the services provided by the program did little to change or fill their need. This means that the program is not budget neutral. Indeed, since the services have no measurable effect in reducing nursing home use, the program's cost is the cost of its services or \$2169 per person per quarter enrolled.

To understand this finding, return to the definitions of the pure types. From these definitions, it should be clear that, for all types, except for those in the healthy type two, the problems that result in nursing home placement are likely to require either intensive supervision or medical services. For example, type five (senile) is likely to require 24 hour supervision, type four (acutely ill) may require medical inputs for treatment, and type three (old/alone) is so old and frail that even a minor problem might require intense supervision. The limited social services provided by the program would not appear to meet these needs.

The only type that appears to benefit from the AHS services is the rehab type - type one. For this type the probability of nursing home entry for clients is six percent less than that for controls (26% as opposed to 20%). Perhaps the medical needs of this type are met in the community and the extra social services are enough to swing one in five persons of this type who would have entered a nursing home toward remaining in the community. However, this is still not close to the 25% needed to achieve budget neutrality even if the program enrolled only persons who were rehabilitable, i.e. with characteristics like this type.

In terms of the types to target toward, the probability of someone like type five entering a nursing home absent the waived services is 58%, much higher than observed for any of the pure types that characterize the California program. Unfortunately, as was found for California, the waiver services seem to do little to change this outcome. Fifty-seven percent of the type five clients also entered a nursing home. As noted above, the programs largest impact is for the rehabilitable type, type one. Thus, it would appear that this question is more complex than it initially seemed to be. The targeting issue must be connected to the nature of the services provided. This implies that the correct type to target toward could be different for different packages of services and, thus, it could be different for different programs and for specific services.

For types three and four, it is not possible to compare clients with controls because too few controls were like these pure types. For clients, the probability of nursing home use was 45% for type three (the old/alone females) and 29% for type four (the acutely ill group). Again, these targeting figures are much higher than

those observed in California. However, the fact that these probabilities are so high for clients would not appear to support the hypothesis that the services provided in Georgia kept these people from entering the nursing home.

The budget neutrality calculation presented above used a single average for the cost of the program. A remaining issue, then, is the extent to which costs vary across the pure types. Since people belong to several pure types, it is not possible to compute averages within a given type. Instead, the cost of community care for each individual can be made a function of the grade of membership scores of people in the five types. This creates an equation, costs are a function of grade of membership scores, that can be estimated using ordinary least squares. Several versions of this equation were estimated, but no version was able to explain more than about 4% of the variation in charges. This is because the variables used to define the types are related to the probability of institutionalization, while hospital visits represent the major source of variation in total Medicaid charges.

The version of the regression equation presented in Exhibit 9-15 used the logarithm of quarterly costs as the dependent variable. The coefficients in the table are un-logged and increased to represent prices that would result in approximately the same total spending as actually observed. Types one and five are the least expensive, and types two and four are the most expensive. One would expect the fourth type to be expensive because this is the acutely ill type and hospital costs are the most important treatment cost for an individual. Clearly the apparently healthy type two also incurs high treatment costs, perhaps implying that the diagnostic information for this type is incomplete. The senile type (five) is less than half as expensive as type four, implying a lack of medical complications. This is even more apparent for type one, the rehabilitable group, which costs only \$1431 per quarter for treatment. Perhaps the lack of medical problems is the reason that these people are good candidates for rehabilitation.

Exhibit 9-15

**AVERAGE QUARTERLY SERVICE USE IN THE FIVE PURE TYPES
COMPUTED USING ORDINARY LEAST SQUARES REGRESSION.**

<u>PURE TYPE</u>	<u>QUARTER COST</u>
I	\$ 1,431
II	\$ 3,065
III	\$ 2,162
IV	\$ 3,722
V	\$ 1,700

$$R^2 = 4.1\%$$

CONCLUSION

The Georgia program clearly targets toward persons who are very likely to enter nursing homes. Targeting accuracy in Georgia is higher than California by a factor of about ten. This might reflect differences in both the populations in the two States and differences in the availability of non-waivered services. However, like California, the services provided under the Georgia waiver do not seem to materially effect the probability of entering nursing homes. This is an unexpected finding for both programs. This would seem to reinforce the argument made in Chapter Six that, in an environment where nursing home beds are in short supply, social services are unlikely to be effective in preventing nursing home entry. This analysis does indicate that persons who enter nursing homes have medical and/or behavioral problems that are much too serious to be handled by occasional homemaker visits or by adult day care.

Indeed, large numbers of people with these kinds of problems were observed in the Georgia program. Since Georgia was much more successful in targeting people who were likely to enter a nursing home than California, better targeting could not be a solution to the problem. The answer must reside in the kinds of services provided, and this is an area where more research is clearly needed. For Georgia, as for California, the failure of the waived services to prevent nursing home entry means that the program is not budget neutral. Indeed, since the services in Georgia appear, on average, to have no effect in reducing the probability of nursing home entry, the net cost of the Georgia program is the total cost of the waiver services.

ENDNOTES

1. Alternative Health Services Demonstration, Georgia Department of Medical Assistance, Final Report, January, 1982.
2. IBID
3. Letter from Charles K. Pierce, Commissioner, Georgia Department of Medical Assistance, March 15, 1982 to Carolyn K. Davis, Administrator, HCFA.
4. La Jolla Annual Waiver Survey, January, 1986, Georgia response, February, 1986, p 12.
5. Theda Wassermans, R.N., La Jolla Management Corporation, Georgia Site Visit Report, (undated), p10.
6. Woodbury, M.A., Manton, K.G., "A New Procedure for Analysis of Medical Classification", Meth. Inform. Med., 21:210-220, 1982.
7. see Tolley, H.D., Vertrees, J.C., Manton, K.G., "Estimating Life Tables for Pure Types of a Fuzzy Partition", draft chapter for Bioacturial Forecasting Models, Manton and Singer eds., in press. (available from the authors)

CHAPTER TEN

PRELIMINARY CONCLUSIONS

The findings from this study are considered preliminary since additional case studies will be conducted over the remaining year. The final report is due to HCFA by October, 1987. These interim findings do, however, offer seven distinct evaluation perspectives. Three studies analyze the waiver program from a national perspective while four waiver case studies represent in-depth inquiries into state administration, target population characteristics, client targeting effectiveness, cost-effectiveness and quality assurance methods. Finally, several things have been learned about how waived home and community care service delivery and financing can be improved. Although it is improper to generalize our findings to all State waiver programs, several major observations can be made with confidence.

The home and community care waivers are very popular with the States since the waivers offer a solution to major deficiencies in State long-term care delivery and financing systems. By September 30, 1985 there were 75 distinct waiver programs in 42 States: 34 were targeted to the aged/disabled (A/D) population; while 35 served developmentally disabled and chronically mentally ill (DD/CMI) individuals; and 6 programs served combined populations (A/D-DD).

There were 70,000 waiver recipients in September 1985, one-third of which were developmentally disabled and two-thirds were aged and/or physically disabled. Only 1,100 of the DD/CMI caseload were chronically mentally ill. Five States (Florida, California, Illinois, New York and Oregon) represented 56 percent of the national A/D caseload; while five States (California, Florida, Colorado, New Jersey and Alabama) accounted for 67 percent of the DD/CMI national caseload. Of the \$257 million in Medicaid funds spent on waiver services in FY1985, approximately 65 percent was for the DD/CMI population; although this group represents only one-third of all waiver recipients nationally. The average annual cost per DD/CMI client is \$7,259 as compared with \$2,008 per A/D recipient.

Although Congress intended the waiver program's cost to be offset by corresponding reductions in the cost of Medicaid-borne institutional nursing home costs, this assumption of budget neutrality is probably not being met. The problem is not that the cost of waived services is high relative to nursing home costs; the opposite is true. Medicaid expenditures for waiver clients are half the cost for nursing home residents. The problem appears to be in the way individuals are selected for waiver eligibility; i.e., client targeting. The legislation and HCFA regulations require States to limit program access only to those individuals, who "but for" the waiver services, would use (i.e. reside in or enter) a nursing home or other institution.

Our 1985 national survey of State waiver programs showed that only 2.4 percent of the aged and disabled recipients entered the program from nursing homes and only one-third of the DD/CMI population entered the waiver from ICF-MRs or other State institutions. Clearly, the waiver program has not been targeted toward institutionalized individuals. Most (80 percent) of the waiver caseload were already living in the community. States argue that the availability of waiver services "prevents or delays" impaired people from the high risk of nursing home entry. The four case studies in California and Georgia undertaken as part of this evaluation indicate that this assertion may well be false.

Why? Only one-half of the A/D waiver programs reported that they linked waiver eligibility to mandatory nursing home pre-admission screening programs. The best of these programs take into consideration not only the applicant's health and functioning status, but also the availability and strength of informal support, client lifestyle preferences, and fully explore all alternatives to nursing home residency. A recent study undertaken for the State of Virginia found that 24 percent of its nursing home applicants were denied entry due to the mandatory pre-admission screens. For most of this 24 percent, satisfactory community-based alternatives were found. Many of the State waiver programs do not screen applicants with this degree of rigor. Instead, many waiver programs qualify individuals for entry based only on their criteria used for nursing home level of care. Almost half of the impaired elderly over 75 years of age and most of the developmentally disabled living in the community at large can easily meet these medical standards for nursing home entry. Medicaid nursing home entry medical criteria are not, therefore, sufficient to effectively limit

waiver entry to only those individuals who, but for the waiver services, would in fact elect to enter a nursing home.

Ineffective client targeting can destroy the cost-effectiveness of a waiver program. We suspect that waiver programs with very strong pre-admission screening components that rely on both medical and social criteria coupled with the use of case management supervision that is oriented toward private alternatives to publicly-supported services as a last resort, are cost-effective as the Congress intended. The four case studies in California and Georgia conducted as part of this evaluation reinforces this conclusion.

When properly targeted, are waiver services successful in delaying nursing home admission? The evaluation of the California MSSP found that for the waiver population targeted correctly, i.e., for those that would have gone to a nursing home absent the waiver services, the MSSP services were not very effective in delaying nursing home entry. For these people, MSSP's services were able to keep one in ten from entering a nursing home, and these services were able to delay the remainder for one month. It appears that, for a population drawn from the community, targeting levels of forty percent should be achievable, though more work in this area is required. Enhancing the ability of community services to keep people from nursing homes while controlling the program and service costs would then appear to be research areas of primary importance if programs that draw their clients from the community are to become budget neutral.

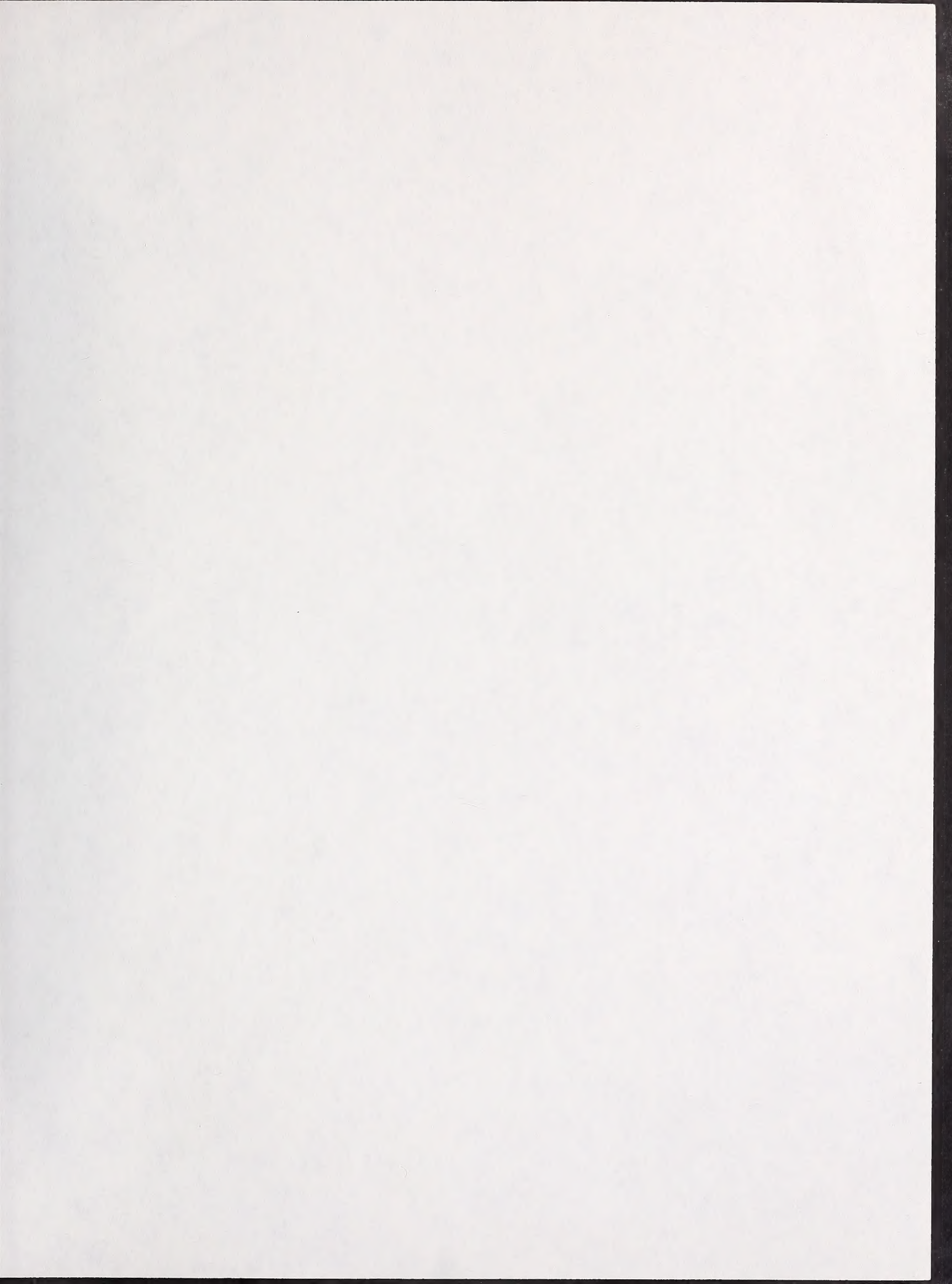
Finally, consideration of the extent to which waivers are budget neutral to Medicaid can be broadened to include the impact on other federal and State program budgets. Our case studies of the California developmental services waiver and the multipurpose senior services waiver found that waiver eligibility may have had a slightly adverse affect on SSI cash payments and a slightly favorable impact on Medicare spending. No consideration has yet been given to food stamps, Title XX, or Title III social and aging services cost-shifting.

Waiver programs targeted to developmentally disabled individuals have incentives for States to "re-finance" the cost of residential services from state funds for the mentally retarded and mentally ill to the federally-matched Medicaid waiver program.

Since two-thirds of all DD/CMI waived individuals entered the waiver from community settings, and many were already supported by state-funded residential care services, the potential for shifting the financing burden away from state funds to federally-matched Medicaid dollars is great. We do not, however, have conclusive proof that States have responded to this incentive. Our case study of the DDS waiver in California suggests that re-financing did occur resulting in a net increase in Medicaid expenditures.

The evaluation issue regarding how waiver programs might be improved can be preliminarily addressed. Waivers having the following attributes have the greatest chance of success in terms of delaying or avoiding unnecessary institutionalization: (1) use mandatory pre-admission procedures similar to those used by the State of Virginia, (2) use strong case management models similar to that used by the State of South Carolina, (3) hold waiver administrative costs to a minimum per recipient month of waiver coverage, (4) conduct six-month in-home client assessments using review staff independent of case managers or providers, (5) ensure maximum leverage of all privately available support services, and (6) provision of a service mix that results in high efficacy.

There are several critical limitations to this evaluation study. The first is that we have conducted only four case studies of waiver programs. The findings from these studies are not generalizable without caution. Second, the waivers have only been in effect three or four years. The real affect of the waivers on long-term care delivery and financing may take more time to play out. For example, any reduced demand for nursing home and state institutional beds may not reduce supply side costs until the beds are closed down. Finally, the preliminary evaluation findings do not necessarily mean that the Section 2176 waiver program is bad federal policy. Although some of the waiver programs may not meet the budget neutrality criterion, waivers well targeted and managed certainly can be at least budget neutral, and the waiver services do have great value to these needy populations. For waiver programs not meeting the budget neutrality test perhaps the policy issue should be broadened to include "Are the waiver services worth the money?"





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